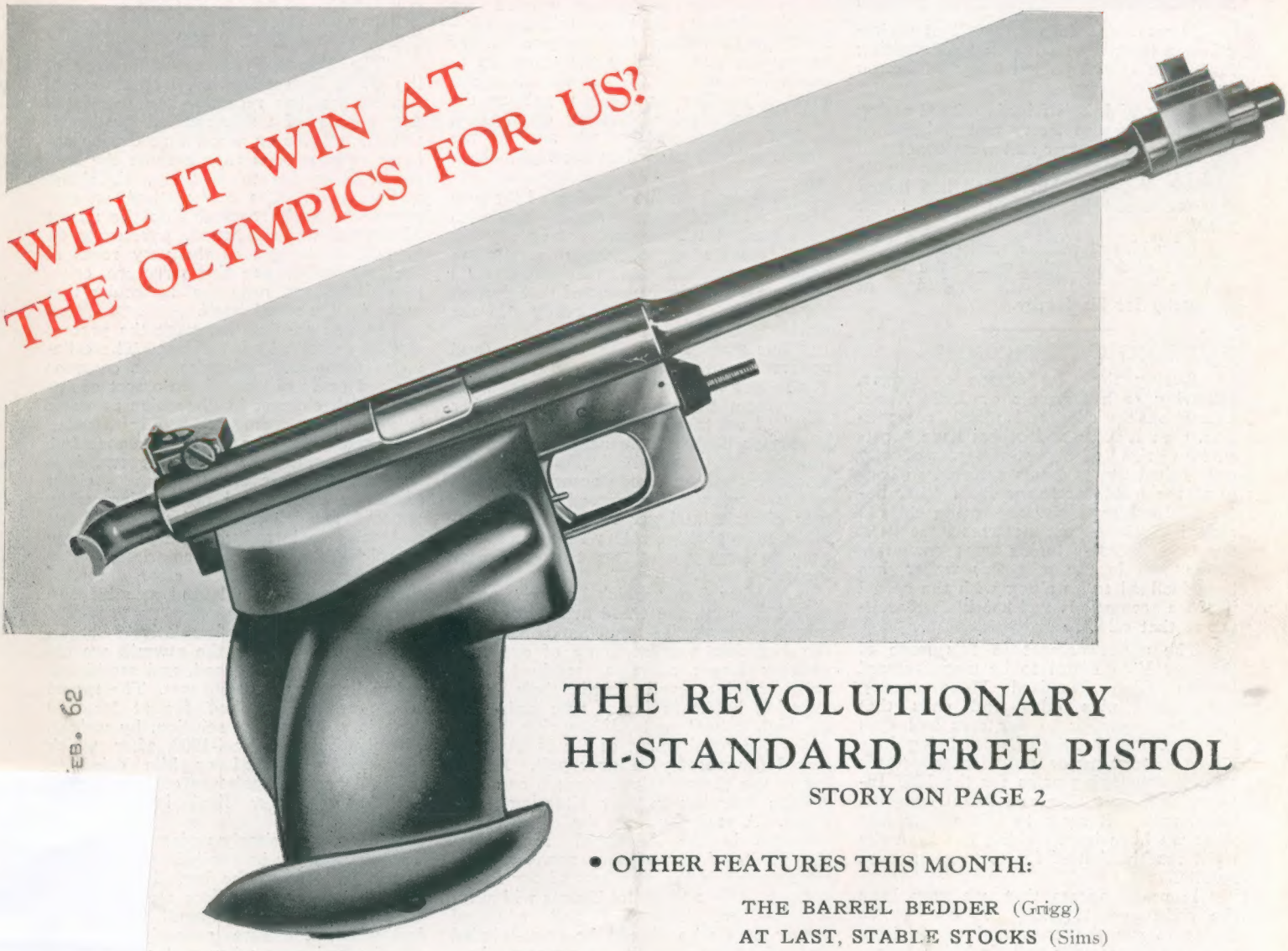
March 1960
Vol. 4, No. 11
35 cents

Precision SHOOTING



THE REVOLUTIONARY HI-STANDARD FREE PISTOL

STORY ON PAGE 2

• OTHER FEATURES THIS MONTH:

THE BARREL BEDDER (Grigg)
AT LAST, STABLE STOCKS (Sims)
TRICKS WITH TRIGGERS (Peterson)
BULLET MAKING (Beginners Corner)
HARVEY DONALDSON WRITES

a magazine for Shooters by Shooters

Precision Shooting is published monthly by Precision Shooting, Inc.

Editorial and business office at 64 Depot Street, Lyndonville, Vt.

Editor—P. H. Teachout

President—Dermot C. Reilly

Vice President—Irven M. Mohnkern

Treasurer—P. H. Teachout

Clerk—Frederick G. Mehlman

Subscription rates:—To the U. S., Canada and Mexico, 1 year $4.00, 2 years $7.00, 3 years $9.00. All other countries $1.00 per year additional.

Change of address requires 30 days' notice.

Precision Shooting is entered at Post Office, St. Johnsbury, Vt. as second-class mail.

JOHN UNERTL

It was with deep sorrow that we received a telegram on March 13th advising that John Unertl passed away on March 12, 1960.

Many of John's friends missed seeing him at the Camp Perry and Johnstown Matches last summer and were concerned that he was unable to attend those shoots because of illness, but we all had hoped that he would be with us again "next year."

John Unertl will be sorely missed by his host of friends throughout the world and we are sure they will all join us in sympathy for his family.

GETTING THINGS DONE

During the past decade or longer, following each Olympic or ISU World Championship rifle and pistol competition, Gun Editors and others have "busted into print" with post-mortems of why our United States teams suffered so badly at the hands of teams from other nations. Ranking high among the culprits named in these post-mortems have been our United States major arms manufacturers, and in the past this writer has been inclined to go along with the crowd in these accusations and has himself written to that effect.

The announcement in this issue of the new Free Pistol to be manufactured by the High Standard Manufacturing Corporation, plus odds and ends that have been coming to our ears and eyes in recent past months of work being done by our other major arms manufactures toward developing arms for the ISU International type rifle and pistol competitions, makes it seem to this writer that what we have been lacking has been the right combination of forces to get needed results.

It now appears that we may have the right combination of cooperative forces to get the arms and ammunition that seem necessary and desirable to assist in putting us again into the forefront in world rifle and pistol competitions. We'll list the ingredients of that combination as we visualize them.

In the Armed Services, and perhaps foremost among these the Army Advanced Marksmanship Unit at Fort Benning, Georgia, we now have groups of shooters with proven ability in competitive shooting who are in constant training both in practice and competition who as a group can provide the results from which sound evaluations of the worth of arms and ammunition may be made.

Added to these shooting groups, each of the military services have support groups of trained and capable small arms maintenance technicians, some of whom apparently have inventive capability for solving some of the weapons improvement problems that the shooting group have turned up.

Add to the foregoing the manufacturing knowhow and facilities of a major arms manufacturer apparently willing to cooperate on a problem indicated by sound and extensive experience and backed by a seemingly practical method of solution, and we have the right combination for "getting things done."

While High Standard, one of the youngsters in the major arms company family, appears to be the first with an entirely new sporting firearms improvement; their new trigger mechanism reported on another page; other members of the arms company family are cooperating to provide our U. S. rifle and pistol teams with the equipment needed for match winning. And our military services are providing the cooperation of supporting and training the shooters to make best use of the improved equipment. Whether or not we get to the top in world wide shooting competition in 1960, it appears that we are on the right road and headed in the right direction.

Judging from the drawing of the new High Standard trigger mechanism, with its electrical release and rotary sear, it would seem a quite simple matter to adapt this mechanism to rifle use, and I'll be a most surprised person if that doesn't soon follow, if it is not already "in the works."

The trend in the United States (and apparently other countries as well) has in the last two or three decades been away from the very light set "knocker type" of set trigger. Probably the most important factor influencing that trend has been the hazard of the "accidental discharge," of which one occurrence could wreck a winning or record score. The new electrical trigger release and seemingly quite positive rotary sear would appear to largely eliminate that particular hazard.

Another factor which has quite probably influenced the trend away from former set triggers in the United States is the fact that a great many of our high ranking target riflemen received their early training, and fixed their early shooting habits in junior rifle clubs and on high school and college rifle teams, under the requirement of the NRA three pound (supposedly) trigger pull. Learning to use the set trigger would, and will, require learning a new shooting technique. A majority of the competitive shooters in the Advanced Marksmanship Units of our military services, from which most of the members of our International Rifle and Pistol Teams will surely come, are intelligent and educated young men who should be open-minded and adaptable enough to welcome new and apparently good ideas, and disciplined enough to give any hoped for improvement a fair and impartial test, whatever their prior and pre-formed **opinions** might be.

This writer is going to be in the cheering section for our U. S. shooting teams, and if the fellows don't quite make the top this year the "calamity chorus" doesn't need to look for me to join them—I'll still be cheering for our teams in future years. With the team work we now have, WE'LL GET THERE!

PHT

COMING MATCHES

(We will list place, date, type and title of match, name of sponsoring organization, name and address of contact person, at a nominal flat rate of $2.00 per insertion, prepaid with insertion order. Insertion orders must reach the Precision SHOOTING office, 64 Depot Street, Lyndonville, Vt., at least 45 days before date of match for single insertion orders. For multiple insertions, 30 days additional must be allowed for each additional insertion desired.)

ALBANY, NEW YORK: July 9-10, 1960; Forbes' 1000 yard Tournament, Karner Range, Albany County, New York. Forbes Rifle and Pistol Club, Inc., Donald W. Winne, 20 Frederick Ave., Albany 5, New York.

ALBANY, NEW YORK: July 30-31, 1960; Forbes' Seventh Annual Long Range High Power Rifle Tournament; Karner Range, Albany County, New York. Forbes Rifle and Pistol Club, Inc., Donald W. Winne, 20 Frederick Ave., Albany 5, New York.

AT LAST, STABLE STOCKS

By

I. H. SIMS

The Forest Products Laboratory of the U. S. Forest Service, Department of Agriculture, has recently announced the development of a new method for dimensionally stabilizing wood that can be applied to gunstocks to overcome the age-old troubles due to swelling, shrinking, and warping. The new method, an outgrowth of basic research into the nature of the cell walls of wood, overcomes dimensional changes at the very roots of the problem, in the fine structure, cellulose chains and even the molecules that make up the wood itself.

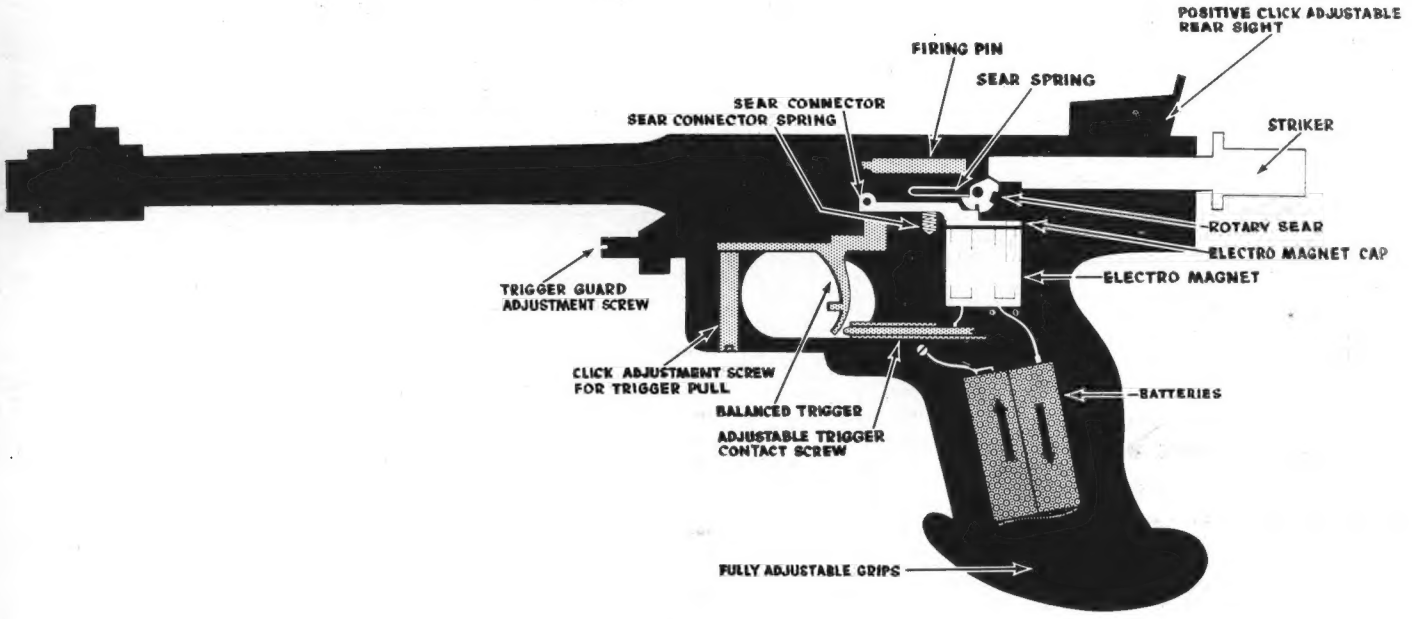
In nontechnical language the process can be described as bulking. The cellulose strands and molecules that compose the cell walls of wood form a sort of lattice which changes in dimension as water is added or removed. By introducing large molecules of another substance into the lattice while the wood is green, it is permanently prevented from either shrinking when dried or swelling when exposed to high humidities. The large molecules so introduced are polyethylene glycol-1000, a wax-like, colorless, water soluble substance. It is closely related to the ethylene glycol used as antifreeze in cars.

The new process is relatively simple. Planks straight from the sawmill are cut into blanks, rough-turned, and semi-inletted while still green and wet. The turned stocks are then soaked for at least 30 days in a 30 percent solution, by weight, of polyethylene glycol-1000, after which they can be air dried or kiln dried to about 6 percent moisture content. They are then ready for final inletting and shaping.

It must be clearly understod that the new process can be applied only to green wood direct from the log. Even a few days drying will interfere seriously with the success of the treatment. The chemical will not diffuse properly into seasoned wood even when water soaked, or under pressure or vacuum. If the wood is to be transported or stored for a while, provision must be made to keep it wet.

It is recommended that the green stock blanks be rough turned and inletted previous to treatment. This saves chemical and, even more important, assures adequate penetration of the chemical in the vital area around the receiver and in the fore-end. Although unturned blanks can be treated successfully, a much longer soaking period is required, 60 days or more, and even then full penetration may

(Continued on Page Six)



THE NEW HIGH STANDARD FREE PISTOL

by William E. Peterson

Firearms history was made at the announcement and demonstrating February 25th, of the new free pistol produced by the High Standard Manufacturing Company, Hamden, Connecticut.

This is the first free pistol designed and made in the United States, all those used heretofore being of European manufacture. The most notable and revolutionary element in the new gun is the use of an electro-magnet and a rotary sear to release the striker and fire the gun. The trigger merely closes the electrical circuit, energizing the electro-magnet. The end result of this is positive insurance against discharge except upon actual movement of the trigger. In all other free pistols, with mechanical trigger mechanism, the minutely critical adjustment of sear and hammer notch required for the essentially light trigger pull, is prone to accidental discharge upon a mild jolt, turning the pistol muzzle upwards, or even a slight change in temperature. Guarding against this happening is one of the hazards of the International slow fire pistol course, and as any pistol shooter knows, the canceling out of a worry of this nature removes a major brake on high scores.

In showing the new gun, Mr. Gary Wilhelm, High Standard's Director of handgun research and development, demonstrated that the mere brushing against the trigger of the edge of a feather would fire the gun. One-tenths of an ounce is all the pressure required—1/320th of that required in the two-lb. pull of fine target pistols.

Since this is a single-shot arm, the area in the grips used for the magazine of the usual semi-automatic pistol, is available for locating the two 6½-volt bateries. The grips are oversize so they can be fined down to suit the individual shooter. The gun will be available in three barrel lengths—8, 9, and 10 inches. The heaviest model will weigh 50 ounces. Mr. William Donovan, President of High Standard, estimated that when in full production the cost would be brought down to less than the $300 charged for foreign-made guns of this type.

The new gun will be used at the Olympic games at Rome in August of this year, by the United States team. Its development is the result of close cooperation between the United States Army Advanced Marksmanship Unit at Fort Benning, Georgia, and the High Standard Research Department. The original conception for many of the features was suggested by Master Sergeant Herman Gano, Army designer and gunsmith, who was most impressive in his statement that he considered the new weapon to be the most accurate handgun made in the world today.

LETTERS

Dear Phil:

I have read with interest three of Harvey Donaldson's letters in recent issues of P. S. I don't wish to get in an argument with him as I consider Harvey one of our best authorities in this old shooting game. I will give my own opinions, as bad as they may be, but they are my convictions, both theory and practical test.

ABOUT THE 7x57 m/m: I heartily agree with Harvey's letter on this cartridge. I have used such a caliber for everything from crows and jack rabbits to elk and find it quite adequate. My rifle is a 1 in 9" twist instead of 1 in 12" This one in 9" twist will handle the 120 gr. Sierra bullet perfectly and also the 175 gr. bullet that originally gave this cartridge such a reputation. A 10" twist seems to be the ideal for all weights, or at least the best compromise if one uses the scale of bullet weights available. The 12" twist will not always handle the longer and heavier bullets at anything except real close range. Sometimes I think we go too far towards slow twists. Take for example the Sierra 110 gr. H. P. and the 125 gr. soft nose. When these are used in a 30-06 at speeds up to and above 3200 f.p.s. they will out perform anything in this caliber up to 300 yards in 10" twist. Theoretically this is all wrong, but those bullets really work.

ABCUT OLD BARRELS BEING REBORED: I am highly in favor of getting an extra barrel for an old worn out one. Ward Koozer of Douglas, Ariz., has three of my barrels now doing just that to them. They were in his hands long before I read Harvey's letter, though Not because I thought this high quality Chrome-Moly steel alloy needed seasoning, but because I could get a new barrel for the cheap price of reboring. I will bet Harvey has a good 10 year old rusted blank for reboring when he digs it up. If it isn't too badly pitted and will clean up with reboring, it should give him same results as a new blank of same dimensions. I believe a good competent metalurgist could give us a run down on this subject of "seasoning." It is my present belief that a good barrel is as good the day it is made as it would be years later. That is for our quality alloy steels. I once bought two beautiful twin blanks in .30 cal., 1 in 10" twist, for my 30-06 match rifle. The gunsmith of national fame who installed these told me to fire about 30 rounds of full power ammo through rapid fire and let cool. This would season the barrel and life would be longer and they would be more accurate. I did this with the first barrel but shot the second very conservatively. All I could determine was that the first barrel's life was shortened by the 30 hot rounds of rapid fire.

A few years ago I passed the Caterpillar Tractor Co. of Peoria, Illinois, on my way to Camp Perry, Ohio. I saw what appeared acres of rusted red castings. I supposed they lacked storage space as reason, but later was told "they were seasoning these parts." I will grant I don't know, but surely a good metalurgist of one of our Arms Companies could give us the correct answer for modern alloy steels and their molecule structure and stress reliefs.

MINUTE OF ANGLE GROUPS: A word about Harvey's caustic remarks about light weight magnum hunting rifles not shooting minute of angle groups. Two years ago a Dr. Michael Barton (now of Maine) had several rifles. Among them was a light Winchester 70 with a Weatherby 7 m/m Magnum barrel. This was standard weight but over 7 pounds. I shot this on a bench with full power loads several times for 5 shot groups, both cold and hot. None was over 1 inch at 100 yards. The last two were not Magnums, but the Winchester 70 featherweight in .270 using 150 grain Sierr abullet and 60 grains 4831 kicked like one. I fired two consecutive bench groups with this combinaiton at 100 yards, and the composite group was under 1 inch. The smallest ¾ inch. The third rifle was a .30-06 Marlin with 22"

(Continued on Page Nine)

THE RIFLE BEDDER

By Jesse M. Grigg

A RIFLE barrel will not group consistently unless the pattern of its motion is the same from shot to shot. Uniformity of pattern in the motion has for its firse requirement an invariable interference with the motion. Moreover, it is not enough that the relation between places of contact with the barrel and its receiver remain unchanged; the barrel, if stressed at all, should be stressed symmetrically; otherwise the barrel will bend differently under different temperatures.

To support the barrel so that it is nominally free of stress is one function of the bedder. Incidentally, as the mechanism which fixes it in this state also bears on it with constant pressure at definitely chosen places, the mechanism itself fulfils the other function; which is uniform interference with the barrel motion.

All bedders have in common the needed provision for mechanical adjustment, and a means of securing the barrel in the desired position, either in virtue of barrel weight, or else by locking the adjusting screws. The desired position in relation to the forestock is very nearly the one which the barrel assumes when the rifle is held in the upright, or vertical position, with the barrel free of all contact excepting that where it is affixed to the receiver. The desired position is not obtained when the barrel is supported horizontally, because then the barrel is not free of lateral stress owing to sag under its own weight.

In the means of knowing where to set the restraining contact points is where the bedders differ. In the most widely used bedder, viz. the one invented by Edwards Brown, the distinguishing principle is use of the indications of a low voltage lamp circuit to denote contact of metal to metal. For convenience the metal to metal contact is established with the rifle supported in the horizontal position, and afterward the sagged barrel is elevated in the bedder ring the number of clicks which previous experience has indicated.

In another type of bedder the sense of touch is employed to determine the zero setting of the bedder points. The finger used for this purpose may possibly be as accurate as the indications of a lamp circuit, for the contact pressure needed to light a lamp varies as the closed circuit resistance at place of contact varies with oxidation or abrasion. In the touch adjustment bedder only two contact points are provided, the weight of the barrel itself supplying the pressure. As a matter of convenience the zero setting is established with the barrel upright, with result that very little advance of points above the established zero is subsequently needed.

Lee Swem, I believe, was the originator of the point bedder which depends in adjustment on the sense of touch. Certainly his is the best known of the type, though the Remington 40X rifle is now equipped with a somewhat similar adjusting device. Another bedder of the mechanical type was devised by Sam Yasho. It consists of a plate, mounted on the end of the forestock with its plane transverse to the barrel axis, the plate being provided with points which apparently are adjusted to contact the barrel by movement of the plate.

A mechanical bedder which did not get into circulation is one which was invented and is still used by your author. Adjustment of it is no problem at all, as this requires only the loosening and again tightening the locking screws while the rifle is held upright to relieve the barrel of sag. In this procedure self adjustment occurs because the locking screws work in oversize holes that have been provided in the L-shaped flat spring which secures the barrel and forestock in proper relation.

The prototype, which embodied the principles of the present dseign, was installed on a Savage 19-M heavy barrel rifle early in the year 1941. Though an anti-vibrationist even then, I believed that a "barrel aligner," as I called it, should be installed as a node. In a uniform rod the two nodes in the first mode of vibration after the fundamental occur at 1/6 and 5/6 of the rod length, measured from a fixed end. Accordingly, I made a Mannlicher stock, and installed the bedder at approximately one-sixth of barrel length back from the muzzle, with stock clearance provided from the receiver forward.

I was well satisfied with the performance, but displeased with the ungainly stock appearance. So in 1944, after much doubt and deliberation, I made up the hardware for another bedder, and still with misgivings installed it on the forward end of the factory stock. To my surprise it worked as well as its prototype, proving that vibration cut no figure. At the forward end of the forestock is where they have been mounted on every bolt rifle which I have acquired since.

In point of time, my bedder was ahead of Edwards Brown's, as my first application for patent was filed in May, 1941. But as mine had failed to find a market (the idea being new); and further, as mine had not been mentioned in any publication, and still further, as it was inconspicuous, there is every reason to believe that Edwards Brown could deem himself first in the field when his device was conceived. In this he deserves credit for originality.

Fig. 1 is the scale drawing of an installation on my 52-B Standard barrel rifle. The right-angle of the L-shaped spring enables it to conform to both longitudinal and lateral needs in the adjustment. Oversize in the screw hole at each end of the spring permits the barrel to find its natural position when the spring is free under one or the other of the screw heads. Lock and flat washers insure permanency of this position after the screws are again tightened. Ordinarily the adjusting screw inside the stock is set at the time of assembly, and subsequent adjustments are made only at the outside screw. The adjustment procedure consists merely of loosening the outside screw, slapping or jarring the rifle while it is held upright; then, with the rifle still upright, carefully tightening the screw, perhaps not to touch it again for months.

By infrequent adjustment, and by not freeing the forestock after use of the rifle, I follow a course which is the very opposite of the usual custom. I did not do these things in the several intervening years before other bedders came along; since then I have continued not to do them because I have found no need. Seeing others adjust a bedder before a tournament and back off the screws at its conclusion, I can suspect that much of this attention is needless.

The actuating principle is the same in all bedders; the circumstances which might be deemed reasons for frequent adjustment and for freeing the forestock after use are the same. So, it seems to me, if lack of this attention has no adverse effcet with one bedder, it should have no such effect with another type.

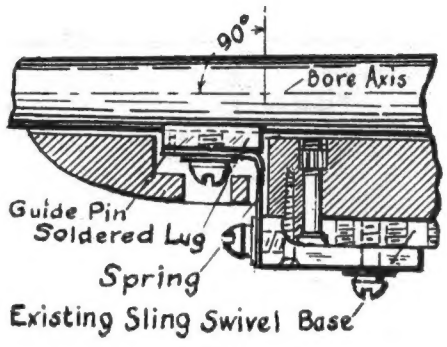


FIG. 1

As to fear that bedder strain will warp an idle stock there is much of a quieting nature to be said. When the bedder is in normal adjustment, the strain on the stock with the rifle in the horizontal position is due almost wholly to the sag thrust of the barrel (much less than the moment of its weight). If the rifle is stored with the points in contact, the stock stress depends largely on the position in storage. If this position is upright, as when the gun is stored in a cabinet, or merely stood in a convenient corner, then the strain is negligible. In any event, as the place in the barrel at the bedder location needs to be elevated only about .005" to overcome sag, the strain on the stock may not much exceed .005", depending on the stock stiffness.

There is still another factor involved. For all strains in which the wood fibers are not deranged, it is probable that the elastic behavior of dry wood is similar to that of metal. This is to say that the original shape is resumed after strain which does not exceed the elastic limit. However, if fibers having in them a high moisture content are distorted and allowed to dry in the deformed state, then they remain in that state. Thus on the moisture content depends the need of backing off the bedder screws before storage. If the wood is dry there is no need.

The inside fibers of a properly treated stock may absorb very little water as a result of being fired through one or two matches in a rain. Likely, if the finish is unaffected, penetration has not occurred. However, if wettings are repeated through successive days, and no off the line drying occurs, owing to excessive humidity and lack of drying heat, then the stock may become so wet and warped that even bedder readjustment will not make the rifle group. The wettest day on which I ever fired four matches in all day rain did not, according to my scores, affect the accuracy of the rifle in the least nor cause the need of bedder readjustment; but several less wet days in a row at Camp Perry put that same rifle in such shape that it did not shoot right for a month afterward. Maybe slacking off the bedder screws would have helped in this case; but I am inclined to believe the reverse—namely that the stiffness of a barrel itself tends to hold a water-logged stock in proper place while it dries.

My opinion that it is unnecessary to adjust a bedder for every tournament is likewise based on favorable experience. On occasion I have fired through four seasons without touching a bedder screw. I do not recall having made any adjustment within the past two years to the one illustrated here. This rifle now has a ringed barrel, but it still shoots a 400 if I do my part and the ammunition is capable. If a match comes along in the midst of a prolonged wet season, I may

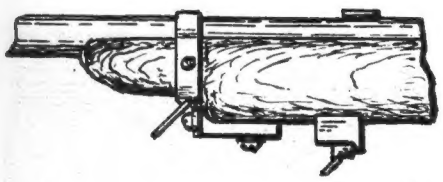


FIG. 2

check a bedder adjustment. But generally I find, when the performance of a rifle has deteriorated, that the trouble is something which bedder adjustment will not cure. Far more likely, attention to the stock at the receiver is needed.

Maybe I am just lucky, or maybe my stocks are old enough to have passed the serious warping stage. Gunstocks, like whiskey, seem to improve with age. A few years ago, having a new rifle, I had the assembly in and out of the stock several times in the first few weeks because the wood on the left side of the receiver persisted in closing in against the metal. In time I fitted another stock, this one much more sturdy, by modifying an inletted blank that had been in the dry for ten years or more. But last summer, suspecting that I was too much of a stickler for sturdiness, I put the metal assembly back in the original stock and took it to a match. The weather turned into rain, and I had to take the rifle apart in the car between matches to relieve the pressure on the right side of the receiver. The wetting it got would not have affected the sturdier stock.

It is my belief that the wood alongside the receivers of factory match rifles is too thin. Two faults are the result. The thin shell warps too easily; and also it may permit the assembly to bend sidewise at the time of firing, this for the same reasons that a cardboard box cannot be bent in a chosen plane. Warping and bending sidewise both are faults which a bedder may not cure.

Again in regard to frequency of adjustment, it is probable that, from the standpoint of accuracy, too much effort is spent in making and unmaking adjustments. A bedder setting is not as critical as many shooters believe. If a forestock is given to serious warping in the lateral direction, then readjustment is warranted. But as to change in the vertical plane, L. F. Moore in SHOOTERS NEWS in 1955, reported for the rifles tested that the elevation in the bedder ring after the zero had been established was generally not critical. When setting my spring bedder I have varied the angle of the rifle from less to more than 90 degrees but have never found any position which beats the vertical. So, unless a stock is a known warper, it is probable that a thorough cleaning of the bolt and extractor slots may do more good than another bedder adjustment.

However, this advice may profitably be modified for bedders of the type in which metallic points are set hard against the barrel, as they are in the electric bedder. With temperature change the lengths of the stock and of the barrel change unevenly, this tending to wear a pit at the place of sliding. For this reason it is advisable to loosen the points when the rifle is stored. But it is unnecessary to free all. Only the top one or two, as the case may require, need be backed off. Then, when the rifle is to be used, only a moment is needed to make them tight again.

Finally, though I may have been somewhat critical, I would be the last to depreciate the worth of a bedder. It provides the needed, suitable fulcrum for the barrel to bend about, and the inexpensive and convenient means of compensating for initial or acquired fault in the forestock alignment. I have an unshakable belief that a proper three-point support is better than any full-floating barrel arrangement. The principal advantage of the latter is absence of the faults which cause an improper three-point system to fail. The bedder avoids these faults, and for this reason is an indispensible help for the match shooter.

THE SHOP

By Roy F. Dunlap

Before getting to anything specific, I'd like to put in with Mr. Peterson an editorial comment on targets. I howled for years for bigger bulls and smaller rings, but gave up awhile back. Many of the top-notch smallbore men feel the same way about the two-minute NRA ten-rings, from comments I have heard from time to time. All scores in a given match are comparative, whether you're grading 400's from 38X's down to 22X's, or 397 down to 385. Sure, it's a shock to shoot the ISU target the first time, but you can be as proud of a 388 prone as of a 400 on an NRA course. Personally, I feel the attitude that the beginning and mediocre shooters need the large ten-ring for encouragement is incorrect. They will actually shoot better, in comparison, on a harder target—they won't let the "pretty good" holds go when they know a perfect hold is needed for a ten. Years ago I crossed my wife up when teaching her to shoot—convinced her they had to be X's to count. In the first real match she shot in, first target at 100 yards, she came off with a long face, saying she'd dropped two. Scorer thought she was crazy, as she had an 18X possible. Later, after it penetrated that she didn't have to work for dead center, she wandered around the ten-ring, lost points, etc. and never did shoot decent smallbore again. When she thought she had to, she shot good; when she found she had some leeway in holding, she took advantage of it and never has been able to regain the original mental outlook.

I think the big ten-rings lead to poorer groups by not forcing utmost concentration on every shot. Also, that we need a large black, for aiming point. The small bulls of the NRA 50 yard and 50 meter targets place a premium on good eyesight in metallic-sight events. Holding ability being even, the man with the better eyes wins here. Another point seldom considered is that a target with small ten-ring and close scoring rings makes for very rapid statistical work. Scoring, ranking and posting times would be halved.

Mr. Grigg's article on apertures was interesting, but I've found that every man has his own problems here. On a big bull I can use a thick-walled ring, but lose definition on small bulls. In .30 caliber shooting I use a small metal aperutre, outside of ring filed down to give a narrow "rim." Most shooters think it too small, yet Emmett Duncan and Allan Luke think it is too big—I can't even see a bull through **their** front apertures. Years ago in a team match my partner used a plastic aperture so big that through it I could see not only the bull, but the target, frame, carrier, half the backstop and the numberboards! He couldn't see anything through my sights. Either of us would be helpless with the others' rifle, yet our sights were best for us individually—we both had twenty-shot possibles at 600 yards that day. **Do your own experimenting!**

Another thing once tried—I may have mentioned this before—I had John Unertl make me a long front sight base, eight or ten inches, with screw-cuts so sight could be located anywhere on it. Trying a dozen or so shooters, it turned out that practically all got a better sight picture with the front sight moved four to six inches back, on a 28 inch .22 LR barrel. Long .22 barrels may help some in slowing up bullets a little for changing wind-bucking characteristics, but I question whether their long sight radius helps very many shooters.

Ignition plays a bigger part in accuracy than most smallbore shooters realize. Not the desired ultra-fast firing-pin fall necessarily, but a hard and uniform wallop. There's nothing rapid about a 40X, but most of them shoot, with a comparatively heavy pin and good spring. Polishing firing pins inside and out, as well as inside of bolt, using a fresh spring every now and then, and keeping things lightly lubricated helps most .22's. Headspace on the minimum side will eliminate a few flyers, too. A rifle with a maximum, or even excessive headspace may shoot well with a particular lot of ammo, and give plenty flyers with another lot, should the latter have a good percentage of thin-rimmed cartridges.

Having worked with literally hundreds of target rifles, I'm rather cautious about making positive statements about specific points. We have all seen rifles which violate known principles and still shoot very well; shot-out barrels that group, bad bedding jobs that don't seem to hinder performance, etc. I used to feel weak back before the war when I'd see Fred Johannson take out a screwdriver and loosen the rear guard screw on his Springfield—just before he'd go clean at a thousand yards. If you told a shooter this was the thing to do, he'd be back shortly and wrap the rifle around your head. We have to exchange experiences, information and test results to bring a "pattern" of usable and general facts to light. **Individual variation in application of such proven generalities only can add to our over-all knowledge of what makes rifles shoot.**

THE JUNIOR CLUB INSTRUCTOR

One of the many problems the Junior Instructor will encounter is that of locating the right sling for the right rifle after the preceding relay has fired the offhand stage. One solution is to have only as many club slings as there are firing points, have a sling rack and have shooters "rack" their slings when through. If, as an added feature, each sling is exactly the same as the others in all respects, including length and location of holes, and if all such holes are uniformly numbered, each shooter can be sure that he has the right adjustment.

If your junior has trouble getting the forend stop back quite far enough, a Freeland aluminum stop gives you about an inch rearward extension without altering the rifle.

The new Anschutz Junior target rifle shows signs of being the first honestly serious match-type rifle for Juniors and JGA is to be commended for its efforts to fill the gap between the 521's and the 513's and 75's.

Squad your shooters. Not only is it good discipline for them at later shoots, but it enables you to get the most out of your time. 54 shooters 1 hour each week

(Continued on Page Fourteen)

At Last, Stable Stocks

(Continued from Page Two)

not be achieved. Also, the most heavily treated parts of the blank are cut away by inletting and shaping and the resulting stock may not be as stable as one green-turned before treatment.

The treated stocks have remarkable stability. In one experiment conducted by the Forest Products Laboratory treated and untreated stocks were alternately exposed to low and high humidities to determine maximum possible shrinkage and swelling. They were first put in a chamber at 30 percent relative humidity and 80° F. until they lost no more weight (moisture). They were then measured with micrometers and transferred to another chamber at 80° F. and 90 percent relative humidity. After about 6 weeks' exposure in this warm, humid environment they absorbed all the water they could hold, as indicated by no further weight increase, and were again micrometered. Even under this drastic exposure, the treated stocks used in the original experiments swelled only 1.0 percent across the fore-end, whereas the untreated ones swelled 3.6 percent of their dry dimension. In later studies, using improved methods not yet published, maximum shrinkage and swelling in the thinner areas around the receiver were reduced to 0.3 percent—so little it could hardly be measured with precision micrometers.

In the less vital butt area the reduction in shrinkage and swelling was less, since the polyethylene glycol did not completely penetrate the thick portion of the butt. To obtain uniformly heavy penetration of the stabilizing agent throughout the butt, where a high degree of stabilization is not essential, would be undesirable from the standpoint of increased weight.

The process has a number of very real advantages. Because the wood is treated green and is stabilized very close to the green dimensions, checking, splitting, and internal honeycomb are virtually eliminated during either kiln or air drying. It has been used successfully on such wild-grain, difficult-to-season woods as bird's-eye maple, Hawaiian koa, curly mango, Oregon myrtle, and some highly figured black walnut and black cherry.

Metal, once fitted exactly to the wood, remains so. The waxy nature of the polyethylene glycol makes the wood somewhat nicer to cut and work, it checkers well and can be carved. It is easy on tool edges. Forest Products Laboratory measurements show that the treated wood is not appreciably different from the usual air- or kiln-dried wood in strength, hardness, color, grain, and weight.

The polyethylene glycol does, however, interfere with the usual processes for finishing stocks. Commonly used finishes either dry slowly or adhere poorly to the treated wood. The treated wood has a rather pleasant waxy "feel" but because the chemical is soluble in water, a water-resistant finish is desirable. The only one found so far that is satisfactory on the treated wood is a new polyurethane resin-base material. An interesting feature of this finish is that a film of it, while not impervious to water (no finish is), is impervious to the large polyethylene glycol molecules. The water can get into and out of the stock but the polyethylene stays inside.

From the simplicity of the treatment it can be seen that it can be applied by do-it-yourselfers. One note of caution should be added here; the tank in which soaking is done should preferably be of wood to minimize the chances of extractives reacting with metal and discoloring the wood. Tanks can be lined with plastic or rubber sheets or other inert material. Or the stocks can be placed in plastic bags with the solution.

Although the process is not patented, at this writing only one company has gone into production on it, the Crane Creek Gun Stock Co., Waseca, Minn. They are offering either fully treated semi-finished stocks or do-it-yourself kits with a rough-turned stock and the stuff to treat and finish it with. The company has brochures on their stocks available on request. Anyone interested in the technical details of the process and the experiments on its application to gunstocks should write to the Director, Forest Products Laboratory, U. S. Forest Service, Madison 5, Wis.

TRICKS WITH TRIGGERS

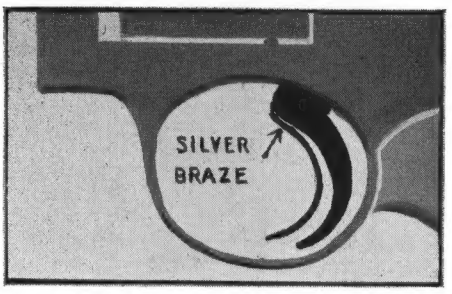
by William E. Peterson

Where did the word "trigger" come from, anyway? Maybe it once was "tricker," because in early days they had to "trick" the charge into exploding, which with the old fire-locks and snaphaunces and what-all, must have been something of a trick. For that matter it is still considerable of a trick to cause the let-off to happen exactly when the sight picture is just right.

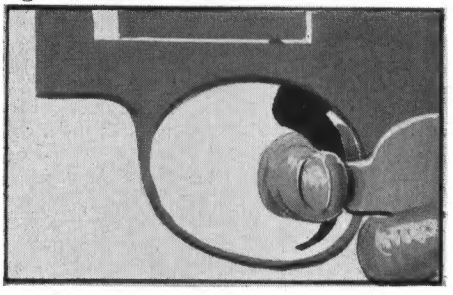
Which brings up the point that most of the books say you really should not know when the hammer is going to fall. That is a deep, dark secret. All you should do is hold and squeeze, let the hammer fall when it may. Someone even wrote, once, that you can usually shoot a better score with the other fellow's gun, because you are not familiar with it and cannot know when it is going off. Should be a good argument for having a variable, unreliable trigger—but who wants one? Be that as it may, I for one like to **know,** as close as possible, so I can sort of arrange to have the sear leave the hammer notch at that instant of time when the sights look good in their wobbling course around and across the bull. Or try to, anyway. And I am pretty sure most of the rest of us have the same idea.

That is where the hand-gunner using double-action has somewhat of an edge. Instead of a dead, rigid trigger, whose ultimate movement he can foretell only by the degree of pinch or pressure against a small section of skin on his trigger finger, the double-action addict enjoys almost a full inch of finger movement to the rear in the course of getting the shot off, giving him a pretty good idea as to how imminent it is, by the position of his finger. At least he gets an effect something like the traffic signal with a yellow warning light just in advance of the red light. He is not surprised by the let-off.

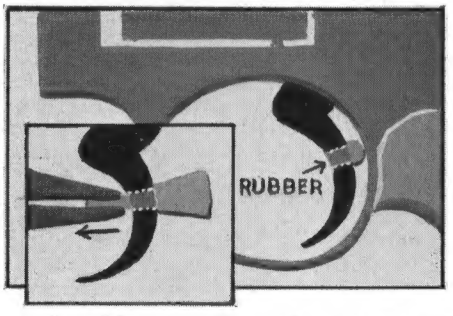
There are other ways of getting the same effect. One is to silver-braze a small flat spring—a piece of clock spring will do—to the top of the trigger (see sketch "A"). This is something of a trick, too, as you can easily lose the temper of the spring doing it. I have found Handy & Harman Easyflo 45 low temperature silver brazing alloy to be successful on this job, especially if you preheat the trigger before applying the spring so they both come to brazing temperature otgether. Ordinary solder will not hold due to the small area of contact. The spring must be just strong enough so it does not quite touch the trigger at the moment of firing. The effect of this contraption is not only to provide more accurate information as to the imminence of let-off, but also to absorb some of the backlash like a trigger stop. It makes a "springy" trigger which some shooters like. A further result is to reduce the effect of the occasional spasmodic yank of the trigger which all handgunners know; the spring absorbs part of the yank, throwing the gun a lesser degree out of line than a rigid trigger.



A piece of clock-spring conforming to the shape of the trigger gives interesting results.



An extension of the grip meets the tip of the trigger finger. This can be built up with plastic wood.



A rubber or oil-proof neoprene insert in the trigger avoids some of the failings of the more common set-screw trigger stop.

Incidentally the expedients herein described are in connection with handgun triggers, most of which are pretty primitive in design and need any help we can give them, although some of the latest .22 auto pistols notably High Standard match pistols, leave little to be desired when properly adjusted. Certainly there is no intention in this article to invade the province of bench rest rifle triggers—a subject all its own.

Another method of giving advance information of the let-off is to provide a part of the grip extending out alongside the trigger guard, so the tip of the trigger finger touches it as the trigger is being pressed (see sketch "B"). Or a small piece of sponge rubber cemented to the side of the grip can give somewhat the same effect.

Besides giving some warning of the let-off, a secondary effect of the devices described is to compensate to a large extent, for the disturbing shock to the gun when the energy used in pressing the trigger suddenly finds itself with nowhere to go. While not exactly a trigger stop, these gadgets do serve as a "finger stop," and get much the same effect.

Many of us have monkeyed with

trigger stops of various sorts. The usual type is a small screw in a tapped hole in the back of the trigger, fairly high up. Since there is usually not room enough for a locknut between trigger and guard, the difficulty is to get a screw that will not shift and destroy the critical adjustment. Sometimes too this adjustment changes due perhaps to the heat of firing. Or a small particle of dirt in the wrong spot can do the same thing, suddenly adding weight to the trigger pull or even preventing the let-off. The logical time for this to happen is of course in the middle of a match, when most gun derangements seem to occur.

Instead of a screw, a piece of rubber will provide against the trouble mentioned, while giving very nearly the same effect as the screw (see sketch "C"). Drill the trigger from front to back, cut a piece of rubber (or neoprene) wedge-shaped, thread it through the hole in the trigger from the rear, and pull it through with pliers as far as you can. The expansion of the rubber will hold it there indefinitely. Then trim it off, leaving plenty projecting at the rear, which can be trimmed off to suit when the gun is assembled. The springy rubber against the trigger guard will absorb much of the shock of trigger release, without adding to the weight of the pull.

These devices are not exactly orthodox, but I have used them all at different times and in fact am still doing so. At least they may suggest a way out when you get into one of those scoring slumps and any change could only be for the better.

HARVEY DONALDSON WRITES

Dear Phil:

In my February letter I wrote about the history of the 25/20 single shot cartridge, which is the one marked No. 1 in the photo showing the five cases. This letter has to do with those cases that were made over to .22 caliber, from that 25/20 design.

Around 1890 there were two gunsmiths living in a small town in Massachusetts that were both interested in small game hunting. One was Ruben Harwood, who wrote under the name of IRON RAM ROD, when he wrote for the shooting magazines of that time. The other was an expert tool maker and gunsmith, Wm. V. Lowe, who later worked for Pratt & Whitney. Both of these men used the Maynard rifle, and both were expert riflemen. After shooting the 25/20 Maynard they both had the idea that this case would be better for small game if it was in .22 caliber.

Harwood took the 25/20 case and made it into a bottle neck design, necking it down to .22 caliber. This case is shown marked No. 2 in the photo. This is really a RARE cartridge, and I doubt if many shooters now living have ever seen such a case. To understand the situation, back around 1890, there was no smokeless powder available for such a case, and it was designed to be used with only black powder. This black powder has never performed properly in any bottle neck design, so while the new case gave fairly good accuracy, trouble was experienced with excessive powder fouling. Pictures of Harwood's case were shown in the early editions of the Ideal Hand Book, No. 5 and No. 6.

To correct the fault in the bottle neck design, Mr. Lowe went ahead with the same 25/20 case, but his design called for the long slender taper instead of the bottle neck. This is shown as No. 3 in the photo. Loaded with black powder this design gave good accuracy and was used for several years by those shooters who had Mr. Lowe re-chamber the .22 caliber Maynard center fire rifle for the case of the new design. Among the old time shooters who used such a rifle was my old time friend Chas. W. Rowland, from Boulder, Colorado. Along in the early 1930's Rowland wrote that he was having an off-hand stock made by Hervey Lovell, for one of his Schuetzen rifles. Then a little later he wrote that he was sending along some old cases to Lovell, and he mentioned the .22 Wm. V. Lowe design among others, as Lovell had asked for old cases for his collection. Rowland sent me some of these .22 cases at the same time, and one of them is that shown as No. 3 in the photo.

Now we come to the interesting part of this situation. If we turn to page 15 in the May 1934 issue of the AMERICAN RIFLEMAN there is an article. "An Interesting 22-3000 Cartridge," by Hervey Lovell. This article shows a design of case EXACTLY like the Lowe design, as may be seen by looking at the case marked No. 4 in the photo. The case shown as No. 4 was fired in a rifle chambered by Lovell in 22-3000 design. My readers are free to determine whether or not Lovell copied the Lowe design, and then brought it out as his own design.

The writer used a rifle chambered for the Lowe-Lovell design, and after experimenting with it for some time he decided it might give better results if the case had more of a bottle neck. With this in mind I visited my friend M. S. Risley, Earlville, N. Y., and after he made up the reamers to my design, and had chambered a barrel for the new case, we gave the rifle a careful trial.

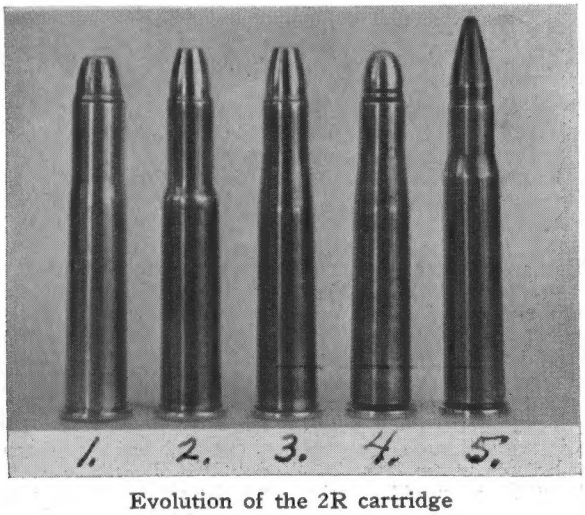
We obtained fine accuracy with several loads, and after J. Bushnell Smith had tried out a rifle chambered for the new case he gave it quite a write-up in the AMERICAN RIFLEMAN. The 2-R case is shown as No. 5 in the photo. Later, most every gunsmith or shall we say, near gunsmith, tried to improve the 2-R design, but as I had tried cases of several different lengths of the neck before I had settled on the 2-R design, I doubt very much if there was any great improvement over the original design of the 2-R.

From the inquiries I get now and then for formed cases there must be many of these rifles still in use. Col. Whelen told me one time this case was about the most satisfactory one he had ever used on wood-chucks. If my readers have one of the old single shot Winchester rifles in their gun rack, they can do worse than have it chambered for this fine little case.

When I last visited the Walnut Hill Range, near Woburn, Mass., I had a good visit with Mr. Lowe. He was then an old man but he told me that he had often wished the modern powder and bullets had been available when he was an active shooter. We had a good visit, and he gave me considerable information that I now have carefully filed away. We had corresponded off and on, even before that time, and I had bought the rifle he had chambered for his own 25/36 design that he later sold to the Marlin Company (the design). I now have the chambering tools as well as the cases, loading tools, etc. for this case. I have plenty of data as to Mr. Lowe's early experimenting, but it would cover more space than can be devoted to a letter.

Sincerely,

Harve



Evolution of the 2R cartridge

TOURNAMENT CIRCUIT
WILLOWS, CALIFORNIA

Again this year Emmett Duncan, USMC, won the Northern California Gallery Rifle Championship at Willows, Calif., Jan. 30 and 31. Duncan fired 200-20x plus 13 X's prone, 199 sitting, 198 kneeling and 196 offhand for the total winning score of 793.

The winning score was fired Saturday afternoon but did not seem to scare anyone as the runner-up scores were close and all fired on later relays. Frank Briggs and Gordon Taras both fired 792. A new young shooter from Yuba City, Calif., Gregg Paillex, scored 791. Veteran shooter Fergus Ward had 790. Needless to say, competition for the Champion title was tough.

The Albany Rifle Team of Albany, Calif. won the teams championship for the second year in a row. Firing five shots in each of the four positions, Fergus Ward scored 197, Gordon Taras 198, Chris Peterson 195 and Fred Forster 195 for the winning team total of 785.

Once again this year this tournament was filled to capacity of 120 competitors two weeks prior to the shooting date.

This year, for the first time, all competitors' triggers were weighed for three pounds. There were very few complaints. The general opinion was that weighing triggers was for the good of the shooters and the shooting game. Chris Peterson of Albany, who can be classified as a shooter's shooter—you name it and Chris can shoot it, from a light set trigger to an eight pound pull—made the comment that weighing the triggers cer-

(Continued on Page Eight)

Willow Rifle Club Secretary (Mrs.) Betty Landberg receiving trophy for the Team Championship from Richard Ward of Ward's Hardware in Willows. Mr. Ward's firm has given a trophy for each of the nine years of the Northern California Gallery Rifle Championships at Willows. Mrs. Landberg is also chief statistical officer for the tournament.

Tournament Circuit

(Continued from Page Seven)

tainly didn't hurt the scores at all.

Mr. William Trimble, District Manager for Winchester-Western Arms from San Francisco was an able representative for his firm, spending his entire weekend on the range, taking in bouquets and brickbats. Most of the smallbore gallery shooters were meeting Mr. Trimble for the first time and it seemed to be a pleasure all the way around. We do know that Mr. Trimble is always welcome at the Willows Rifle Club and can't come back again too soon.

Winchester Model 52 was the predominate rifle and Western Mark III the most used ammunition. There was a scattering of Remington 37s and 40Xs, and one experimental 40X with a fluted barrel. Other rifles were Hammerli, Anschutz, Martini and BSA International. There is a big trend toward the thumb-hole stock, also making the equipment heavier. Every year a few more Bausch & Lomb variable power scopes show up. They stand out due to their different shape.

A total of 70 merchandise prizes and 21 pieces of silver were awarded, in addition to medals and trophies. Most of the prizes were donated by the merchants and business houses of Willows. A Jenior loading press was donated by RCBS Gun and Die Shop of Oroville.

(Editor's note: To give an idea of the tough competition in this tournament; 11th ranking James Hill, USMC, had an aggregate score of 782; 13th ranking Roger Leezer with 779 for Hi-Junior award; 26th place Herb Owen had a 777; and Hi-Expert Carroll Collier had a 775 aggregate. The prone, sitting and kneeling matches were all won with 200 possibles with high X-counts, and Rodney Palmer tied Emmett Duncan's winning 196 score in the offhand match.)

NEW YORK "METROPOLITAN CHAMPIONSHIP"

Ransford Triggs, Madison, N. J., won the New York Metropolitan Rifle League "50 Shot Championship Match" on February 7th with a score of 500-44x. The match, one of the oldest in the country, having been first fired in 1921, calls for 50 shots prone, any sights, smallbore rifle, at 100 yards indoors. The match is fired on a National Guard range in Brooklyn. The target presently used by the Metropolitan Rifle League has scoring areas some 12% smaller than the standard 100 yard decimal target. Triggs' 500-44x is a new record on this reduced target. He won this championship match three years ago with a 500-44x score but that was fired on a target of standard 100 yard decimal dimensions.

Walter Tomsen was runner-up with 500-40 and Sam Tekulsky third with 500-39. Larry Moore and Fred Cole each had a 500-38, Roy Oster and John Holle had 500-36 each, Dr. Irwin Tekulsky and Harry Stone 500-35's, Lloyd Norton and Sam Burkhalter had 500-34's and 12th place Loren Samsel, Jr. had 500-33. C. Newkirk was high in Expert class with a 500-32. Seventy-six fired the match course.

FLORIDA SMALLBORE TOURNAMENT

The 9th Annual Winter Smallbore Rifle Tournament lived up to its wintry name as both days of the tournament were fired in the midst of the worst frost the Gold Coast of South Florida has seen in many years. The only thing that was not frozen, or even dampened, was the enthusiasm demonstrated by the 16 junior and 29 senior competitors who participated, on Dr. Archer's Pine Tree Rifle Range at Homestead, Fla.

Though Sunday, 24 Jan. was scheduled for S. S., Mks. and Junior classes, the highlight was on the junior competitors who dominated the field in numbers and nearly so in the matches. At day's end it was (S. S.) Tom Washington who led the Grand Aggregate with a 1587-75x, closely followed by 15 year old Kathy McEvoy (1583-88x) who was declared the Junior Champion and winner of the American Legion Commander's Cup. This trophy had been in the possession of the 1959 champion, Leigh Baxter of Miami Springs, who fired in the Master class in 1960 taking 3rd place in the Grand Aggregate among the tougher competition. Next to Champion Kathy McEvoy in the Junior division, the most consistent place winner was the youngest junior competitor, 10 year old Maury Morse. Craig Williams, a relative newcomer to the smallbore game, emerged as high Marksman.

Thirteen year old Jackie Modisette fired the only 400 score of the day in the any sight Dewar event which set the standard for her father, Col. W. M. Modisette, who was obligated to duplicate this effort the following Sunday. This he did with a slim margin of only 2 X's.

Among the Masters and Experts on Sunday ,31 Jan., it was a head-knocking battle all the way between F. M. Van de Water of W. Palm Beach and Achilles Tamborini of Miami with the aggregate tie 1591 broken by only 2 X's in favor of Van de Water. Robert Hearn of Miami earned first place in Expert class.

CALIFORNIA HI-POWER MATCH

Winner of the Valley Shooting League .30 cal. match on the Bakersfield Rifle Club range, Feb. 7th, was S/Sgt. Kenneth Hayes, USMC Res., with an aggregate score of 241-21V. Henry Wright, Fresno, was second with 240-19V and John Weldon, Clovis, third with 240-17V.

Sgt. Hayes was high in the 200 yard standing stage with a 48-6V, beating Henry Wright's 48-3V. W. J. Clough, Porterville's 50-7v in the 200 yd. rapid fire stage was high. In the 300 yd. prone rapid fire stage John Harness, Selma, shot a 49-2V and Bert Dickinson, Bakersfield, a 49-1V. Bob Perkins, Fresno, scored a 50-8V at 600 yds. prone, and John Harness a 50-6V. Bill Agee, Avenal, shot a 50-4V at 1000 yds. and Sgt. Hayes a 50-2V.

TRI-STATE TEAM MATCH

For several years past the states of Conn., Mass. and R. I. have been firing each winter Tri-State gallery rifle team matches, with teams limited to 15 firing members and the 10 high scorers to count for team score. Formerly three matches were fired each winter, one in each of the three states, but starting this winter only one match is to be fired each year with the match location rotating among the three states. The 1960 match was fired in Connecticut, on the Middlefield Rifle Club's range, January 31st. This winter, for the first time, the course of fire was upped to 10 shots in each of the four positions, with any sights.

The Connecticut State team has been a quite consistent winner in these matches and this year won by a somewhat larger margin than in several recent years; 3886 for the ten man team over 3842 for Rhode Island and 3841 for Massachusetts. W. Schmitt for Conn. and B. Stevenson for Rhode Island shared high individual honors, each firing a course score of 393. H. P. Smith and W. Horvay of the Conn. team each fired a 391, Smith ranking with the individual high offhand score of 97.

A NEW CONNECTICUT MATCH

A new Club Team Gallery Rifle Championship competition has been inaugurated by the Conn. Rifle and Revolver Ass'n. The matches will be fired on the gallery ranges of the Winchester

Repeating Arms Co. in New Haven. Only one match was fired this year but a series of at least three matches during the winter are planned for future years. Any number of shooters from a club may fire the 10 shots in each of the four positions with any sights with the five high scores to count for team score.

At the 1960 match on Feb. 7th, nine club teams competed. The Torrington Rifle Club won by a narrow margin over Rippowam Rifle Club, 1927 to 1925. Quinnipiac Rifle Club of New Haven was third with 1919.

Frank Voytek of Bridegport Rifle Club fired high individual score of 393 and Walter Horvay of the Torrington Team shot a 391.

An interesting note is that three of the five high scorers for the runner-up Rippowam team were wives and each one of them beat her husband. Their ranking was: Dot Buchalter 388, Martha Ventres 387 (94 OH), John Ventres 387 (92 OH), Virginia Williams 384, Lloyd Buchalter 379, (Frank Williams 368).

THE STAM "SCORE-BOOSTER"

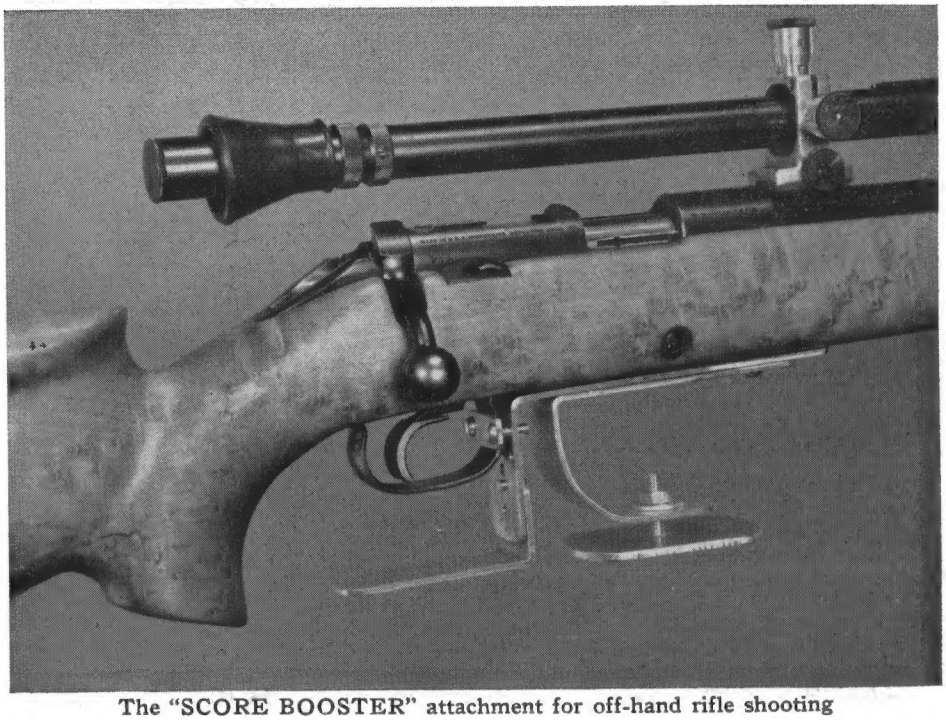
The "SCORE-BOOSTER," made and sold by Richard D. Stam, 25 Ridgeview Drive, East Rochester, New York, is an easily attached accessory designed to aid in off-hand shooting with the smallbore target rifle. The accessory is easily attached to the rifle by means of the clamp to the trigger guard, as shown in the illustration, and the forward end fastened to the fore stock with a small wood screw. The generous flat surfaces provide a comfortable positioning of the thumb and fingertips, or hand, and the accessory has the effect of lengthening the forearm of the supporting arm, and thus permits a firmer positioning of the shooters elbow against the body or on the hip. The accessory has quite a wide range of adjustment to fit the need or desire of the individual shooter. Except for those who use a very low position, the accessory need not be removed when shooting in the prone, sitting or kneeling positions.

My own smallbore rifle with Dunlap Free rifle style stock, with rail for attaching palm rest, did not permit attaching the accessory, so I have had some clubmates test the SCORE-BOOSTER. The first to try it was one of better offhand shots who has for several years been using a home-made palm rest device on his Rem. 37 rifle. The SCORE-BOOSTER required such a different resting method than he had become thoroughly accustomed to that he did not like it and gave it only a very short trial.

Then a club member who is in his second season of gallery target shooting put the SCORE-BOOSTER on his Win. 52. Prior to using the SCORE-BOOSTER he had rested the rifle on thumb and fingertips without any aiding accessory. He had been having trouble in improving his offhand scores, sometimes shooting a good score but more often discouraging low scores. He has found that by using the SCORE-BOOSTER he is able to get a much solider positioning of his elbow on top of his hip, to give steadier, better control of his rifle. In the three weeks that he has been using the SCORE-BOOSTER his offhand scores have been very greatly improved and he now quite consistently is among the high scorers on the rifle team. He credits the SCORE-BOOSTER with being a big aid in the improvement of his offhand shooting and is very pleased with it.

The SCORE-BOOSTER might not be of much assistance to good offhand shooters who have become accustomed to the use of some type of palm rest, and such shooters probably wouldn't bother to give the accessory much of a test. But for some shooters, especially those who have not previously used a palm rest, the SCORE-BOOSTER may well provide a real aid to improving their offhand scores. Only a fair trial of the accessory can tell whether it is an aid to any individual shooter. The price of the SCORE-BOOSTER is $10.95 postpaid, from the maker. It is of good material, well finished, and should be durable.

P. H. T.



The "SCORE BOOSTER" attachment for off-hand rifle shooting

Letters

(Continued from Page Three)

barrel and F. N. action. This and the Winchester featherweight both were untouched factory jobs. This Marlin with Micro Groove barrel was the most accurate of this caliber I ever shot, using 125 grain Sierra bullets, 52 grains 4895 and Federal 110 primer. I have owned bull guns and many target weight rifles in this caliber, but none have given me the gilt edge accuracy this Marlin did.

This brings up the subject of 36 grains of Hi-Vel No. 2 and the M1, 172 grain Match bullet in the old Springfield T barrel (bull weight and sporter stock). I shot a good many thousand rounds of this and will admit it is good. This was my favorite turkey shoot lead. Today, however, I will choose the 125 grain Sierra bullet and 52 grains 4895 lead over it.

Getting back to the lightweight magnum sporting rifles. My son, P. J., also called Paul, is on Weatherby's bench, testing his rifles. He was mentioned in TRUE magazine, February issue, last column on page 67, by Lucian Cary as test firing Elmer Keith's 300 H and H made by Weatherby. The first 5 shot group was I believe ⅞ inch at 100 yards, and it was this one Cary wanted to see proved. P. J. not only duplicated the less than minute of angle but shot a ⅝ inch center to center of widest shots. My son tells me many of these light weight magnums shoot inside the inch.

In speaking of odd guns and such making good groups, I have heard the AMU at Ft. Benning, in their glass bedding and other tuneup work on the clumsy and hated M1, get minute of angle at 300 yards with the better ones. This is not a 5 shot group, but three 10 shot groups as their testing is done. This seems impossible but any one doubting it may check with any AMU member. I have one of these rifles and must say with iron sights I can't get minute of angle, but I can generally shoot higher scores with it in competition over the National Match course than I can with target or bolt rifle. Oddly, my scores with M1 at 600 yards are equal to my scores with bolt rifle.

Sincerely,

Paul Wright

(Editor's note: Paul Wright, Silver City, N. M., is a long experienced high power rifle competitive shooter. He holds the "Distinguished Marksman" medal, has won the National Guard Trophy three consecutive times, and has won several state Championships in the Southwest and has set four NRA national records.)

OLD TIMERS IN FLORIDA:

Dear Phil:

I think it was in your last issue of Precision Shooting that I saw an item to the effect that Major Hession had recently set a club record for night shooting at the Clearwater Rifle Club at 100 yards for forty shots by scoring a 400 plus 38x's. I think this needs a little correction or explanation so here goes. The same night (Oct. 26 last) Hession made this score another member, W. J. T. Jones, also turned in a 400 and 38x's. Then on Nov. 2 and again on Feb. 2 Jones shot other 400 and 38x scores. All the shooting mentioned above is from the bench.

An old Vermonter, Louis B. Tims, formerly from Montpelier, is one of our most active Small Borers and may be found on the range daily. Lou paid a visit to the St. Petersburg range one night some time ago and over the Dewar Course scored 400-38x—this, I should explain, is from the belly.

I am almost too modest to say that I hold the club record of 400 with 40 X's

(Continued on Page Sixteen)

National Bench Rest Shooters Association, Inc.

NBRSA OFFICERS AND DIRECTORS FOR 1960

EASTERN REGION:
Irven M. Mohnkern (President)
232 So. Patterson
State College, Pa.
Paul O. Gottschall (Vice Pres.)
R. D. 4
Salem, Ohio
Robert W. Hart
300 West Fourth St.
Nescopeck, Pa.

MID-CONTINENT REGION:
R. G. Berry
Pawnee, Oklahoma

NORTH CENTRAL REGION:
Walt C. Siewert
Box 749
Custer, South Dakota

GULF COAST REGION:
Robert W. Smith
6507 Lakewood Blvd.
Dallas 14, Texas

NORTHWEST REGION:
Dr. Rod Janson
606 West Galer
Seattle 99, Washington

MISSISSIPPI VALLEY REGION
Ted Holmes
R. R. #1
Mattoon, Illinois

SOUTHWEST REGION:
(Director vacancy)
Secretary-Treasurer
P. H. Teachout
64 Depot Street
Lyndonville, Vt.

NBRSA MEMBERSHIP DUES:

Individual annual dues $5.00 (includes magazine subscription for membership term). Associate member (wife or husband, son or daughter under 18 years of age, of member in good standing—no magazine) $2.50. Life membership, $75.00. Annual club affiliation fee $10.00.

NATIONAL BENCH REST CHAMPIONSHIPS

VARMINT AND SPORTER CHAMPIONSHIPS at San Angelo, Texas, August 18-19-20, 1960. Contact Mr. F. L. Magoon, Box 909, Kerrville, Texas.

UNRESTRICTED BENCH REST RIFLE CHAMPIONSHIPS at Tulsa, Oklahoma, August 23-24-25, 1960. Contact Mr. E. A. Anderson, 3604 South Toledo, Tulsa, Oklahoma.

AN ERROR CORRECTION

Under title of "MORE SHOOTING INCENTIVE" in February (Page 12) this writer stated that a "National Match Course" of fire had been adopted by the NBRSA Directors for both the Varmint Rifle and Sporter Rifle classes and that aggregate records for this course would be recognized. This is partially in error and the writer now makes proper correction.

The National Match aggregate course of fire consisting of five 5-shot matches at 100 yards and five 5-shot matches at 200 yards, with recognition of record aggregates for the National Course and the two sub-aggregate range courses, was officially adopted for the Heavy Varmint and Light Varmint rifle classes, **only.**

No National Match Course of fire was adopted for the Sporter class at the 1959 Directors' meeting, since the Directors felt that more competition experience in the Sporter class was desirable and needed before such a course should be adopted. Since there is no recognized National Match aggregate for Sporter Rifle class it is obvious that there can be no records for a non-existent course.

Writing as merely a dues paying NBRSA member and as one potentially interested in competition in the Soprter Rifle class, it is **my personal opinion** that the eventual adoption of the same National Match Course for Sporter Rifle class as has already been adopted for the two Varmint Rifle classes has advantages that should be given consideration and trial.

The specifications for weapons permitted for competition in each the Heavy Varmint, the Light Varmint and the Sporter Rifle classes cover rifles presently being used in the various types of hunting. The permitted methods of resting the rifles in competition are practical methods for testing the accuracy potential of this type of weapons for field use. This being the case, and with the general but scaled similarity among the three lighter rifle classes, there would seem to this writer to be the following advantages for having the same National Match Course for all three classes. The believed advantages are based on the assumption that aggregate course results are a truer indication of a rifle's accuracy than any single small group can be.

With the same National Match Course for all three of the lighter rifle classes the aggregate accuracy results would be directly comparable as between rifle weights, calibers, etc.; providing a uniform national measuring stick. It would make it convenient for programming all three classes, or any combination of Varmint and Sporter classes in the same match or tournament. A common "measuring stick" for aggregate accuracy results could provide a better evaluation of the various weapon types, calibers, etc., and of accuracy progress that may be made in all categories.

REMEMBER; the foregoing comments and suggestions are merely those of **one** NBRSA member and, at present, representing ONLY one member's opinions and desires.

P. H. Teachout

JOHN CLINTON RICE

Dear Phil:

It is with sorrow that I must tell you our friend Jack Rice passed away following major surgery in a local hospital (National City, Calif.) on Tuesday, February 23rd. He had been worried and upset for about a week and entered the hospital Sunday afternoon where extensive surgery to repair damaged blood vessels in body and legs was, alas, unsuccessful. It was indeed wonderful that he could be active right up to the end (over 79 years of age) and not suffer greatly. We had been to the range on Friday where he had fired several small groups which pleased him very much. Had he lived he might well have been incapacitated so perhaps it's for the best—but hard nevertheless for his friends. We may indeed be thankful for the privilege of knowing such a man.

Yours in a sense of loss,
Don Smith
National City, Calif.

(Jack Rice has been an active NBRSA member for several years and competed in the 1958 National Championships at Tulsa. Former hobbies were golf and, earlier, auto racing. He once drove in a cross-country race with Barney Oldfield. He had been engaged in the real estate business for many years. Ed.)

1960 BENCH REST MATCHES

EASTERN REGION

Detroit, Michigan: April 24, July 24; Detroit Bench Rest Club, Jack Roy, Sec'y, 2446 Hewitt St., Hamtramck 12, Mich.

Augusta, Ohio: May 7-8, May 28-29, June 18-19, July 16-17, Sept. 17-18; Reed's Run Rifle Range, P. O. Box 66, Augusta, Ohio.

Dryden, New York: (Varmint rifle matches) May 15, June 18-19, July 9-10 (Eastern Region Varmint Rifle Championships), Sept. 11; Dryden Fish & Game Club, Russ Cuatt, Sec'y, 113 Park St., Ithaca, New York.

Plainfield, New Hampshire: May 22, July 16-17, Sept. 18; Plainfield Rifle & Pistol Club, Leslie R. Stone, Sec'y, Plainfield, N. H.

Easton, Ohio: June 11-12, Aug. 6-7; Chippewa Rifle Club, Nelson Berger, Sec'y, R. D. 1, Box 192, Marshallville, Ohio.

Southboro, Mass.: June 26, Aug. 14, Oct. 16; Southboro Rod & Gun Club, c/o J. W. Baldwin, 5 Milk Street, Westboro, Mass.

Lewistown, Penna.: July 2-3 (Eastern Region Bench Rest Rifle Championship); East End Blue Rock & Sportsmen's Club, c/o P. J. Aurand, Milroy, Pa.

Johnstown, New York: Sept. 3-4 (Annual Labor Day Shoot); Pine Tree Rifle Club, Wm. N. Hare, Sec'y, R. D. #1, Johnstown, N. Y.

MID-CONTINENT REGION

Kansas City, Kansas: Apr. 30, Aug. 6, Oct. 15; Mill Creek Rifle Club, Inc., L. F. Carden, Sec'y, 2211 No. 44th St., Kansas City, Kans.

Tulsa, Oklahoma: Apr. 10, May 15, June 11, July 16, Aug. 14, Aug. 23-24-25 (National Championship, Sept. 18; Tulsa Bench Rest Rifle Club, E. A. Anderson, Sec'y, 3604 So. Toledo, Tulsa, Oklahoma.

Wichita, Kansas: May 28, July 2-3, Oct. 2; Wichita Bench Rest Rifle Club, Larry Engelbrecht, Sec'y, 122 Gow, Wichita 3, Kansas.

MISSISSIPPI VALLEY REGION

St. Louis, Missouri: Unrestricted bench rifle, June 5, July 10 (Mo. State Championship) Oct. 2; Varmint and Sporter, May 1, June 26, Aug. 14; Bench Rest Rifle Club of St. Louis, James R. Ernst, Sec'y, 2230 Horncliff, Kirkwood 22, Mo.

Florissant, Missouri: Varmint and unrestricted rifle matches; contact Richard E. Davison, Sec'y. Nine Ring Sportsman's Club, Route 1, Box 812, Florissant, Mo.

Windsor, Illinois: Contact Windsor Rod & Gun Club, Inc., c/o Ralph Briggs, Windsor, Ill. for match dates and programs.

NORTHWEST REGION

Renton, Washington: Unrestricted bench rifles, June 25-26, July 30-31; Varmint and Sporter matches, Apr. 10, May 8, June 12, July 10; Seattle Precision Shooters Club, Roy E. Meister, Sec'y, 3938 Ashworth, Seattle 3, Wash.

SOUTHWEST REGION

Yreka, California: Varmint, Sporter and unrestricted bench rifles, May 28-29, Sept. 3-4; Yreka Rifle Club, Inc., c/o Ray Jones, 508 Knapp St., Yreka, Calif.

GULF COAST REGION: San Angelo, Texas, National Varmint Rifle Championships, Aug. 18-19-20; contact F. L. Magoon, Box 909, Kerrville, Texas.

NORTH CENTRAL REGION

Custer, South Dakota: May 22 (Chuck shoot—Varmint & Sporter), June 12 (Sporter and unrestricted bench rifles), July 30-31 (Unrestricted, Varmint and Sporter); contact Walt Siewert, Custer, So. Dak.

Buffalo, Wyoming: Contact C. C. Hankins, P. O. Box 151, Buffalo, Wyo.

Iowa Falls, Iowa: Contact Verle W. Hunt, R. F. D. #2, Ackley, Iowa.

ANOTHER 1959 RECORD RECOGNIZED

At the Mid-Summer Shoot of the Buffalo Outdoor Rifle Club, Buffalo, Wyoming, on July 19, 1959, Bruce Pheasant of Buffalo shot a 10-shot group at 200 yards with heavy Varmint rifle which has been officially measured as .7996 inch center-to-center of widest bullet holes This target has been officially recognized by the NBRSA as the present record for a 10-shot group at 200 yards with Heavy Varmint Rifle.

The Buffalo Shoot was a two day event with the 100 yard shooting on July 18th and the 200 yard shooting on July 19th. The program provided for both Heavy Varmint Rifle and Unrestricted Bench Rifle matches. The Varmint Rifle matches were fired in the afternoons and the bench rifle matches in the evenings, so, this 10-shot Heavy Varmint Rifle record was made in the more difficult afternoon shooting conditions, and it was shot in the second of the five matches fired.

Mr. Pheasant's rifle was a 25" x 1¼" x .900" Douglas barrel fitted to a Weber action and chambered for the .222 cartridge by Geo. Fullmer of Oakland, California. His scope was a 20X Unertl. His load was 24 grs. Ball powder, Remington primers and 55 gr. bullets made in B&A dies.

Mr. Pheasant held the 5-shots at 100 yards Heavy Varmint class record from June 1957 until it was beaten by Barbara Schellert in June 1959.

EASTERN REGION WINTER PLANNING MEETING

After opening the 1960 Winter Planning Meeting of the Eastern Region at Elmira, N. Y., Feb. 13-14, Director Irvin Mohnkern read the following paper to the 37 members in attendance:

"Your NBRSA President and Director of the Eastern Region wishes at this time to announce that he will not be a candidate for Director or any other office of the NBRSA.

"It is only a natural sequence of procedure that one of the Deputy Directors be seriously considered for the office of Eastern Regional Director. This may or may not prove to be a problem because the actions of the membership have not always been complimentary to the elected Director. At this point I solicit your cooperation with the many problems your Deputy and Director are faced with now and especially in the future.

"The membership must be reminded that all the problems are not of a local level and therefore must be treated on a national level. No one man or Director can impose his will on the majority or Directors, therefore; a compromise on rules and regulations are the result of compromises and I will admit they may not satisfy the extreme desires of any one region but are workable in all regions.

"Your officers and directors have been accused of many unfair actions because all the facts of the cases were not known to the membership. In most cases, these facts are not available to everyone and it is impossible to make them known to everyone. However, I would like to point out that your Director and Deputy Directors have made decisions without fear or favor to anyone.

"We have been accused of not being democratic. This is as far from the truth as the South Pole is from the North Pole. It just is not so.

"Specifically, a decision had to be made on the rest problem for the 1959 Nationals. The procedure for making this decision was set up at Tulsa a year before the Johnstown Nationals. This procedure was followed and I made the decision. Some of the membership objected, a very small minority, and the fuss made was all out of proportion to their numbers. I am of the firm opinion that it was a wise decision. The Directors, after a warning from me, decided to hold the 1960 Nationals under the same conditions regarding rests. To prove the point, how could the present champion Gottschall be classified when he shot both the restricted and unrestricted rests at different ranges? Our ruling stood the extreme test which was necessary so as not to add to the confusion. I maintain no other solution was possible at the time.

"I, for one, am amazed at the interest now being shown in Varmint and Sporting Rifle matches. This has all come about since your Directors formulated new rules for these matches. The majority of shooters have and they demand to be heard and they were heard in formulating the rules. In fact they are still being heard from. This is the first time in our short history they have been given the proper recognition and the results of this recognition is most gratifying. Let's say the regions other than the Eastern Region are the ones who are benefiting most. This again proves that the Eastern Region is not the only one to be considered.

"From my point of observation, the Varmint and Sporter classes are going to prove to be the most important part of the Bench Rest shooting in the future if the shooters are given rules which are to their liking.

"In conclusion, we Bench Rest Shooters are to be compared to graduate students, not to undergraduates. We are the select group, far above the average shooter in knowledge of rifle and bullet making and components. Therefore it behooves each and every one of us to look upon and treat kindly the undergraduates who are going to appear in our matches in the future. Help them and you will be helping yourselves to a larger and stronger NBRSA.

"I thank each and every one of you who has played a part in helping me serve as Director of the Eastern Region whether your criticism was favorable or unfavorable. I hold no brief against anyone for the criticism directed against me and I will continue to shoot in the matches in the future to the best of my ability."

- - - - -

The report of Eastern Region treasurer, E. B. Davis, showed a balance of $1,901.70. Mr. Davis was not available for reelection and Mr. J. M. Reece was elected to this office.

The election of a Director and two Deputy Directors from the Eastern Region, for two year terms, takes place in 1960. A Director and one Deputy Director for the Atlantic Seaboard division will be elected at a meeting during the Labor Day Shoot at Johnstown, N. Y. A meeting for election of one Deputy Director for the Great Lakes division will be decided upon and announced later.

After a discussion on light rifle rules and specifications the meeting went on record for recommending a five year freeze on these rules.

It was announced that the Charles Hart Trophy for team competition in 1959 had been won by the Targeteers, an Ohio team captained by George McMullin, with a score of .536. The second place team was also from Ohio and captained by Omar Rinehart.

There was a lengthy discussion of the "cross-fire" problem with the majority feeling that stationary backers were the only solution It was the majority feeling that the stationary backers should be used in the most important shoot, the National Championships, and that the competitors should be charged an extra fee to assist on the expense of installing this additional equipment.

Other items of local regional concern were discussed and acted upon, including the initial setting up of the seasons match schedule. At present there are the following open week-end dates for shoots: Apr. 2-3, 9-10, 16-17, Apr. 30-May 1, June 4-5, July 30-31, Sept. 24-25, and all Oct. weekends except 15-16.

For the second successive year a heavy snowfall plagued members for their trips back home.

BEGINNERS CORNER

By Robert F. Stinehour

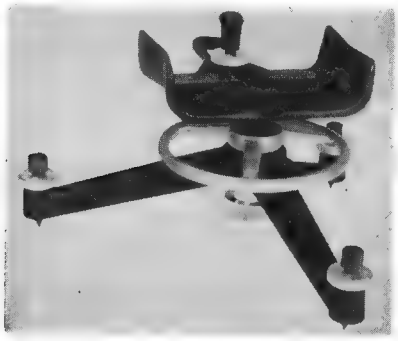
It has been my experience in bullet making that lubrication is one of the most important factors, from the core cutting stage to the time the bullet is inserted in the cartridge at some distant match. While many things I do in making my bullets may be controversial to many bullet makers, and to things that are accepted more or less as fact, the size of the hole (or group) in the paper is the final proof as to whether the bullet is good or not.

Bullet making, as all will agree, is a long and tedious job, even when one is just making bullets for one's own use. For this reason I like to short-cut as much as possible without lowering the quality of the finished bullet. I believe many shooters measure wall thickness, overall length, etc., on every jacket. This I stopped doing a long time ago as in my experimenting the **carefully selected** jackets did not make smaller holes in the paper than the ones chosen at random from the same lot, **provided** the lot of jackets is reasonably uniform to start with. Because of this it is my **opinion** that the jacket material itself has more bearing on whether a bullet is good or not, than the jackets being **absolutely** uniform dimensionally.

Due to the high quality of Sierra jackets as we get them today, I have **never** had any I felt were not good enough for competition. I merely spot check for dimensions and then my "Stool Shooting Slave" takes over for a very thorough visual inspection. Each jacket is inspected inside and out for any deep scratches, dents, or coils of copper which sometimes deposit themselves at the bottom of the jacket, in the jacket trimming process at the factory. These damaged jackets, which are very few, are the only ones I cull. The visual inspection is a long process in itself, and I am probably more fortunate than most to have a wife who is willing to do this for me. Without doubt my bullets would not be as good without her help, as she culls slightly damaged jackets which I might otherwise use. (I have been contemplating as to whether I should set her up in a jacket inspecting service, or buy a washing machine and have a gun patch laundering service.)

Now we come to the core cutting process which should have more care than some exert if uniform cores, hence uniform bullets, are desired. To achieve uniform cores I wipe my wire thoroughly with a small cloth saturated with Hoppe's No. 9 solvent. Along with lubricating the core cutter with Hoppe's oil, or three

(Continued on Page Twelve)



HAVE YOU A "RESTLESS GUN"?
1958 Nat'l B. R. Champion Rob't Smith
1957 Nat'l B. R. Champion Harold Hale
BOTH USED BEECHER RIFLE RESTS
Nine years in WORLD WIDE use. Custom model (Illustrated) $27.75. Super model still $22.50. Postpaid in U. S. A. No C. O. D.'s.
EUGENE L. BEECHER
2155 Demington Dr., Cleveland Heights 6, O.

TO THE ACCURACY SHOOTER

Are you tired of bringing home alibis? Mike Walker's 6mm International case, shooting the 90 gr. bullet at approx. 3200fs is showing more accuracy than the .30-06 or .308, bucks wind better than the .30-06 180 gr. at 2600fs. Build your Free Rifle or Bench Gun to shoot in the wind. For the shooter who wants the finest I can still furnish Weber Actions, Hart or Douglas Premium barrels and my Precision Dies.
GEO. M. FULLMER
Metal Working Gunsmith
2499 Mavis St., Oakland 1, Calif.
Reamers by F. K. Elliott and K. Francis

BENCH REST AND VARMINT SHOOTERS

KENRU

KENRU Soft Swaged Bullets, 45, 50 and 55 gr. Guaranteed less than ½ gr. variation. Guilding Metal Jackets: KAMPEN for 50 & 55 gr. bullets @ $8.50 per M postpaid. SIERRA for 50 & 55 gr. bullets @ $10.00 per M postpaid. 6m/m jackets .827" & .937" @ $12.50 per M postpaid. 3/16" lead wire (25 lb. spools) in good supply.

Please inclose stamp with inquiry.
Member NRA and NBRSA
166 Normandy Ave. Rochester 19, N. Y.

LAMINATED GUNSTOCK BLANKS
ALL WALNUT
WIDTHS 2½, 3, 3½, 4¼ inches.
8 ply to 25 ply construction.
OWEN LAMINATED GUNSTOCK BLANKS
Townsend Road, Watkins Glen, N. Y.

T. H. BOUGHTON, Gunsmith
Rebarreling—Chambering — Restocking Bench Rest and Varmint Rifles built. Match Bullets, .22 and 6mm from B & A dies. Repair and accuracy work. NBRSA Member and Competitive Shooter.
410 Stone Road Rochester 16, N. Y.

Beginners Corner

(Continued from Page Eleven)

in one oil, I keep the cutter well oiled at the area doing the cutting. This allows a little oil to deposit itself on the cut end of the wire each time, and therefore allows the end of the next core to slide more freely on the core stop. Without this lubrication the core has a tendency to hang up on the stop end of said core, and give one a core bent and damaged in the middle. Straight, uniformly cut cores will have very slight weight variation after forming in the squirt die. Occasionally a core will hang up on the core stop end and become slightly bent or damaged, even with this lubrication. I watch the cutter closely to see that this does not occur, and if it does the core is segregated and used with the culled jackets for "Mr. Woodchuck" as he does not know the core is damaged or the jacket scratched. By not exerting too much pressure in feeding the wire to the cutter, and against the stop, one will also have less bent cores.

My bullet components are kept in cigar boxes in the assembling process, and the covers dropped and covered by a clean cloth to keep them dust free when not assembling.

Wetting the fingers generously with oil (some shooters use lanolin), I stir them through the box of cut cores, mixing and lubricating them. This makes the cores come from the squirt die looking smooth like many steel pins, rather than lead cores. It also keeps the squirt holes **completely** functioning with no clogging. I probably extrude more lead than necessary in forming my cores, but am not going to be stingy with lead when the finished bullet performs well. My quirtings run up to half inch in length and occasionally over half.

In core forming I segregate only the formed cores that seem to take very light pressure to form. I keep the tool and the core ejector pin well oiled while forming. By oiling the ejector pin periodically when it is at the top of the stroke, the oil will work its way down through the die, and keep the die wall and punch pin slightly lubricated. I also keep the die punch just barely floating as I believe with this lubrication and the punch afloat there is less wear on the die than possibly having the punch slightly out of alignment. To further protect the die I do not use a slamming stroke, but bring the handle up slowly until the punch has entered the die, and the ejector pin has reached the top of its stroke, then exert the slam pressure to squirt and form. One caution note—if forming operations are stopped for any length of time, the first couple of cores on resuming operations should be culled, as the die will have over-lubricated from oil running down the ejector pin.

The cores are now ready to insert in the jacket hulls, and here is where many eyebrows will be raised, for I **do not** wash or tumble my cores. I have left washed cores and lubricated cores in bottles from season ot season and the oxidation which takes place on the washed cores is sickening to look at, while the unwashed cores retain their look of smoothness. It seems to me that this oxidation on the washed cores might also take place in the finished bullet, and possibly be harmful.

I believe that many shooters make a big mistake to make their bullets 53 grain weight because John Doe shoots 53 grain bullets wtih success, or to maek their bullets 55 grain because Joe Smith has good results with that weight. Here is the reason why I believe this. In every B&A core seating die there is only one setting which is best for a given punch, due to the taper inside the Sierra jackets. I like to core-seat my bullets **close** to the size of the finished bullet, so the base of the bullet is not upset too much in the swaging process. So my cores are formed to a size which when core-seated will come up to the size I desire, with the core seating punch finishing its seating **exactly** where it contacts the jacket wall. Of course if one has several different length and diameter punches, any weight bullet desired can be made in the same die, **but** to those who may have only 50 and 55 grain punches as I do, I advise to stick to making bullets close to those weights. For in my opinion a 52½ grain bullet made with either of these punches would not be a good bullet, and a 55 grain bullet made with a 52½ grain punch would not be a good bullet. In other words, make your bullets to fit your dies, as a uniform bullet in a reasonable weight will shoot better than a distorted bullet in **any** weight. Like "Mr. Woodchuck," I don't believe "Mr. Target" knows the difference between a 52 and a 55 grain bullet when they pass through him.

To make it plainer for those who may not understand the foregoing, here is my system, but first of all it is very essential to have at least two presses. One press is set up for core forming and the other for core seating. Using my 55 grain punch in the core seating setup, I cut a core which after core forming will weigh slightly over 55 grains when seated in a .705" jacket. Since I know my swage die is a whisker over .2242 I want this assembled bullet to come as near .2242 as possible after core seating. To achieve this .2242 and not have the lead bleed-by the punch, the core must be the right size. If the core is too long I adjust the core forming die and try again with a slightly shorter core, until I come up with the right combination.

Jacket lubrication must be very uniform (I use B&A bullet lubricant) in core seating, for to get the desired .2242 I have to seat with just enough pressure to hold the bullet up in the die. The **slightest** over-lubrication causes the bullet to "hang up" on the seating punch, and makes for cuss words. When one does hang up on the punch, I wipe it with a clean cloth and most often the second stroke will release it. This bullet is culled.

I might inject here that I like at least 24 hours between processes, and since I make my bullets in lots of 3 to 5 thousand, more than 24 hours goes by between processes. Also I have found that one can tighten the die body lock nuts too much and throw the die out of alignment. This can cause lead "bleed-by" even when one has the right combination of jacket and core, and bears watching.

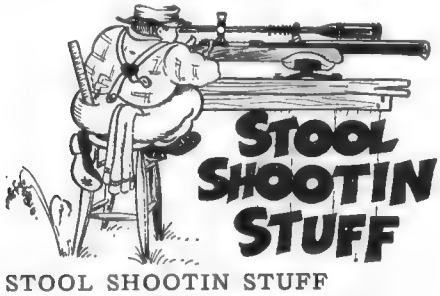
Now we come to the swaging process, which is easy by comparison. Since B&A lubricant used in the core forming is rather heavy, I find I get less bullet

SHOOTING SUPPLIES OF ALL KINDS—"OSTER" SHOOTING ACCESSORIES A SPECIALTY
EVERYTHING FOR THE HUNTER AND TARGET SHOOTER
A COMPLETE LINE OF LOADING COMPONENTS
Send for Catalogue of Oster Accessories made by Shooters
Llanerch Gun Shop Dept. O
R. E. OSTER
MAIL ORDERS FILLED PROMPTLY
2800 TOWNSHIP LINE UPPER DARBY. PA.

wrinkle forward of the ogive by slightly wetting my fingers with oil (or lanolin) and stirring them through the unswaged bullets. The swage die is adjusted without the ejection frame, but the ejector frame is installed after the proper adjustments are made. I like the ejector frame, as the finished bullet will show no ejection pin mark, if the handle is lowered easily until contact is made between ejection pin and bullet point, and the bullet pressed out rather than knocked out. This method also makes less chance for the pin to by-pass the point and cause more cussing. As Ray Biehler says, it's now time to light the pipe, open a bottle of beer and watch the "little gold nuggets" come forth.

In swaging I catch the bullets that take a light pressure to form, and those that seem to take a heavier pressure to form, and separate them in two different lots, making a total of three lots with those that swage normal. This is the only segregation my bullets get as the extreme variation is within three tenths grain. I have segregated by weighing to within half of one tenth and found they shot no better for me, so eliminated the weighing process.

After bottling and labeling, without degreasing, they are ready for that distant match. They go down to the target with the grease still on them, and who knows, perhaps this makes them slide through the same hole better.



STOOL SHOOTIN STUFF

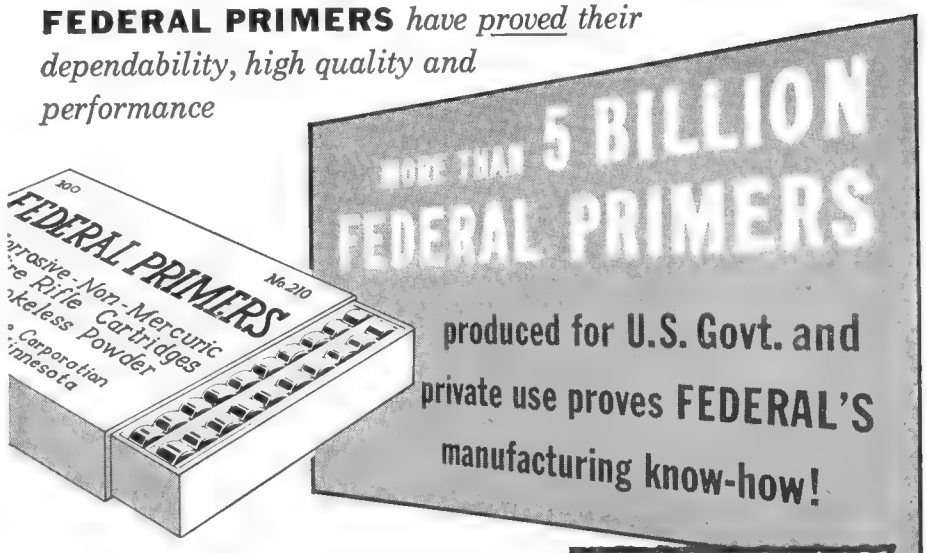
Dear Phil:

To my mind, the February issue is a dandy, and I find myself reading and rereading it. Creighton Audette's article including the reproduction from "ARMS AND THE MAN" was particularly interesting and perhaps made many of us go back a long time in our memories. Back to days when we, as youngsters, read shooting magazines, and of shooting, as avidly as I now read of missile theory design or progress in my Air Force magazine Missile Age section. The only difference is that in those days I could look forward to taking part in shooting, but alas! now I have little hope of doing much more than note the development of missilery in the news items of the day.

How much the simple diagram in Harry Pope's article did to build up interest in it. To how many he proved his point in that day, I do not know, but it is a dandy example of one picture being worth a thousand words, which brings me to the point that I so often hear commented upon—the lack of pictures in our magazine. I know they are space consuming and a little costly, but I believe we will get more attention to our articles and make a more lasting impression on readers if we can use more of them. I know of a lot of subjects that we talk over at our shoots and other gatherings are clear and understandable to us because we have viewed them with our own eyes, but to the chap not able to attend these shoots, a mirage awning, a mod-

(Continued on Page Fifteen)

We don't have to make elaborate claims...
FEDERAL PRIMERS *have proved their dependability, high quality and performance*

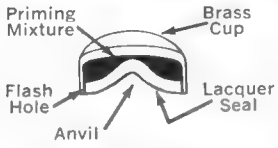


There is no substitute for experience. When you realize that Federal Cartridge Corporation has made and sold over 5,000,000,000 (five BILLION) primers, what better evidence can you ask to prove their quality and dependability. Federal experience means shooting satisfaction.

Federal Primers give you consistently uniform ignition – the prime requisite for accurate shooting. Neither temperature changes nor humidity changes can alter this uniformity. Independent ballistics laboratories have subjected these Primers to a temperature range of +140°F. to –60°F. and found *no variation in performance.*

Federal Primers are non-corrosive, non-mercuric and dependably stable. Put your trust in Federals – as many of the outstanding bench rest shooters do. Check the records.

Made in the U.S.A. where labor receives an ample salary.



IDENTIFICATION

No. 210 Large Rifle Primers – Brass Cup – RED printing on carton

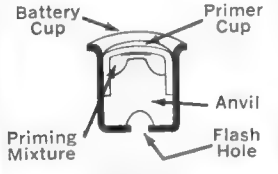
No. 200 Small Rifle Primers – Nickel plated cup – BLUE printing on carton

No. 150 Large Pistol Primers – Copper plated cup–BLACK printing on carton

No. 100 Small Pistol Primers – Brass cup – GREEN printing on carton

retail price
$8.00 per 1,000
See your Federal Dealer

FEDERAL NO. 209 SHOT SHELL PRIMER
This is a "battery cup" primer–charged with Federal's non-mercuric, non-corrosive, extremely stable patented priming mixture–the same priming mixture as used in Federal's Hi-Power and Monark shotgun shells. Packed 100 to a box, 10 boxes to a carton.



retail price
$15.00 per 1,000

FEDERAL Sporting Ammunition
Hi-Power and Monark Shot Shells and .22 Caliber Cartridges
Federal Cartridge Corporation • Minneapolis, Minnesota

Your 6 m/m will be at its best if you
USE SPINTRU — 7-S BULLETS
Double processed and individually weighed.
73 or 87 grain, $7.50 per C plus postage.
CRAWFORD H. HOLLIDGE Marstons Mills, Mass.

PRECISION STAYNLESS STEEL MATCH TARGET BARRELS
Blanks in calibers .224, 6mm and .30 caliber available.
.22 rim fire blanks sold installed in customer's action only.
For prices and particulars, write:
Hart Rifle Barrels, Inc.
LaFayette, New York, R. D. #2 Telephone Tully 2367

IMPROVE YOUR SCORES
with a stock from
STINEHOUR RIFLES
M. D. 26, Route 9W
Newburgh, New York

- Smallbore and Big Bore Free Rifle stocks.
- Marksman style and Bench Rest in any style.
- Superior Varmint and Sporter Rifle stocks.
- Lowest prices for quality workmanship.

New
Micro-Dial Universal Scope Mount

SEND FOR NEW COMPLETE CATALOG 14-P.S.
ON ALL BUEHLER EQUIPMENT.
MAYNARD P. BUEHLER
ORINDA, CALIFORNIA

The Gunsmith BLACK FINISHING UNIT

Made especially for the man who wants to do the best in firearm refining — for himself or for profit. This same process is used by manufacturers. Comes complete with tanks, burners, supply of PENTRATE crystals, instructions and all equipment needed. Write for details.

HEATBATH CORPORATION
Springfield 1, Massachusetts

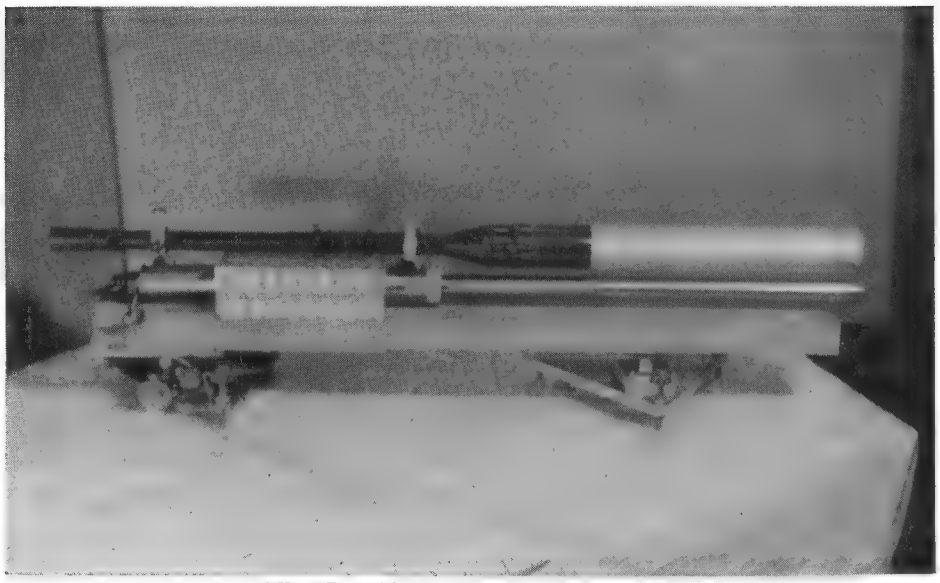
The Junior Club Instructor

(Continued from Page Five)

on a 6 point range?? Yes, if they are squadded.

A timesaver is the use of 10-bull targets in Junior Qualifications, except where otherwise noted. The exception to this is when you get a one-bull enthusiast or one who isn't moving as rapidly as the others and can use those 4's and 3's. In this case (1) move them to a relay composed of one-bull shooters or (2) keep them on the 10-bull target and score the "outers" with a celluloid template, scored for the lesser counters. As a matter of fact, those 4's won't help much with the strings that need 40's anyway.

Rod Manson, Watertown, So. Dak.



Allen Bench's sleeved action "rifle (?)"

BITS OF INFORMATION

Allen T. Bench

Up until the time I first became a member of the NBRSA the smallest group I had ever fired was slightly over ⅝" for five shots. The knowledge I have gained through reading Precision Shooting has enabled me to cut that down to 5/16" for ten shots. A wonderful improvement in only three years! I am now waiting on delivery of a set of bullet swages and am looking forward to this phase of handloading.

I finally have an unlimited rifle and was able to compete in the last match of the season at Renton (Washington). I was lucky enough to tie fifth place in the 100 yard aggregate but my inability to cope with the wind had me fighting for last place in the 200 yard matches. The inclosed photo of this iron monster should give you (PHT) the shudders, as from your writings one gets the impression you are not very enthusiastic about this type of rifle. (Hadn't realized my "slip was showing" so much—PHT)

In the controversy about the precision rests discouraging the beginners, I never read anything about how the beginner felt. For my own part the precision rests give me a great deal of confidence and are well worth any additional effort to make. Without having to worry about holding the rifle steady and uniformly from shot to shot leaves only wind doping the big problem.

As you can see, my rifle was inspired by Paul Gottschall's article on his sleeve collet action. The loading port was omitted and by not using a bolt stop or ejector, loading is not inconvenienced. The Clark-Douglas bedding device interested me since first reading about it several years ago, and not being very adept at wood working it was easier for me to make this type of - - stock (?).

Perhaps some information on assembling the receiver and sleeve would be of interest. The sleeve was bored to a finger press fit to the Remington 722 receiver. Both were degreased with boiling water and detergent soap. Both mating surfaces were tinned using 50-50 soft solder and Dunton's Soldering Fluid For Stainless Steel (M. W. Dunton Co., 7 Goff St., Providence 3, R. I.—an excellent fluxing agent) and were then recleaned to prevent any corrosion from the fluxing agent. By standing the sleeve vertically in the vise, putting the receiver on top and slowly heating both parts with a torch, they were slipped together. I had drilled two quarter inch holes through the sleeve into which was run solder to insure a full bond. A hole was also provided for the front guard screw and a ¼-28NF cap screw was installed as a safety precaution, although this is probably unnecessary.

Care should be taken not to get the receiver any hotter than the flow point of the solder as some of the temper could be drawn out, resulting in a soft receiver. A product which can be used to indicate temperature is "Tempilstik," which is a crayon with a definite melting point. They come in 50 degree steps and are available throughout the heat-treating range of tool steels. I don't have the address of the manufacturer but they should be available through Machine Shop Supply firms.

My experience with glass bedded rifles has all been good, and I believe that the average Rifle Crank can do a better job with glass bedding than trying to fit to the wood. The method I use is after the initial glass bedding, clean the stock out with acetone, rewax the metal parts and paint the bedding surfaces with a coat of the resin without the glass fiber, and reassembled. It makes an easier job on military actions to smooth up the bedding surfaces, as if they are rough it will be very hard to get the stock off.

If you have occasion to check that **perfect** bedding job, Perfect Circle Plastigauge will make a simple task of it. I have found that after only one coat of glass bedding compound there is considerable space between the metal and the stock, but the two coat system gives a very tight fit. This Plastigauge comes in three sizes to check clearances of .001" through .009" and is made to check automobile engine bearings. To use it, just put a short piece of the Plastigauge in the place to be checked, draw up the screws, then take apart and by comparing the width it was squashed to against the scale on the paper container gives you direct reading in thousandths of an inch.

In my line of work I have had occasion to use several of the new miracle adhesives, and one which stands out for gunsmithing applications is Hysol Epoxi-Patch, made by Hysol, South El Monte, Calif. and Olean, N. Y. This material comes in two squeeze tubes and is mixed by squeezing out a ribbon of each of equal length on a mixing board and blending the two together. It has amazing strength and will glue ferrous metals, aluminum, wood, glass, ceramics, cloth

and most plastics. It will put scope blocks to stay and could be used in sleeving a rifle action with aluminum.

In using any epoxi-resin materials (fiberglass resin, etc.) never use the mixing container or paddle again, as by doing so it can accelerate the chemical reaction and cut the pot life of the material down to zero.

A double-duty bench rest can be made using a set of sawhorse clamps, the ones which use four 2x4s for legs and a 2x4 top rail, available any hardware store or lumber yard. Spike a piece of ¾" plywood on the top rail, add a couple of braces underneath and it's done. This outfit dismantles in minutes and the versatility of the clamps make them useful around the home.

Sometime back Roy Dunlap recommended Tap Magic as a drilling and tapping compound; since that time I procured some and gave it a trial. For tapping minimum tolerance threads it is outstanding but for general work I prefer Anchorlube G-771, put out by Anchor Chemical Co., P. O. Box 2775, Cleveland 11, Ohio. This compound is made especially for hard metals; stainless steel, high carbon and the like. It is also useful as a lubricant and excells for a lathe steady rest lubricant.

Stool Shootin Stuff

(Continued from Page Thirteen)

ern mechanical rest or a modification which assures scope return to zero is often a hard thing to visualize. Pictures, in a very great many instances would help the whole game. I know you have tried with your little camera and I, like other contributors, have not done my part in making full use of mine. Let's put on a drive to get more pictures submitted by the shooters. Even the pictures make news, and that is what keeps us all interested.

The reprint from the old magazine certainly left us in suspense about the deer that the General shot at but even in those days, as today, it is apparent that there was always an alibi for missing deer. Times haven't changed much and it is very apparent that even benchrest shooters haven't changed much when we think back upon the deer that were missed by some of the shooters in last year's hunt.

If there is one thing for us to remember, it is that conditions do not stay static in any field, and the benchrest field is certainly no exception. It seems to me a very short time ago that I heard many shooters talking of and writing about burying the .219 Donaldson as an obsolete cartridge. I never was among those convinced, and there were others who took the same viewpoint; nevertheless, a great many times, I have heard the issue raised. I must be fair in saying that usually its critics admitted it was a good cartridge and had won many laurels in its day; however, it is very interesting to note that it is still winning laurels according to the new records that you published in the February issue. When one cartridge wins five out of six records (the sixth was won by a wildcat, possibly the only one of its kind), there is certainly an indication that the .219 Donaldson is not only a good cartridge but it is recognized as such by a number of good shooters. This is heartening to me, and it must be to Harvey Donaldson, and I can hear him explode, as I have noted on several occasions when somebody talks about improving the .219 Donaldson. He chirps back in no uncertain manner that the .219 Donaldson hasn't yet been improved on, and that he is still looking for the cartridge that beats it.

I am not suggesting in the above that the boys with their .222's or .222 Magnums should cast them aside or rechamber them. I think it is good for a variety of rifles to be on the line. It proves that the shooting technique is often the reason that matches are won and I anticipate being beaten, as I have in the past, by shooters who were not using the .219 Donaldson. The time when I perk up my ears and begin to think things over pretty carefully is when the amiable and capable master of Reed's Run, W. M. Brown, gives us all a good licking with a 6 m/m backed up by practically a standard .243 case. There's a man to bow to in more respects than one, yet he is not alone in shooting the bigger caliber with marked success.

We have a great lot of shooters and they are experimenting all of the time, and the more conscientious of them follow to some extent the lead of the medical profession in being unwilling to publish their experiments until a long enough period has elapsed to prove that the new technique is successful and will be lasting. It takes a lot of shooting by many men with many rifles to eventually clinch a point. I am thinking now of a certain powder number that has done well. It is practically unprocurable but it seemed to have what we need especially in certain calibers or types of chambers. I saw a very interesting two diameter bullet, beautifully made in an experimental die. The theory is good and the results in the initial stage are intriguing and warrant further experimentation.

Al Angerman did us a fine service in his reports last month, and the rash of varied ideas on how to take the so-called roll out of the scope mounts will, I am sure, mean tighter groups in many instances next year.

I kidded a little in last month's column about whether or not our guns are becoming outlawed faster than they are becoming obsolete, and perhaps I shouldn't have been so facetious about it. It is a very serious problem and one has to but look over the outline of proposed laws as published by the "RIFLEMAN" to realize how seriously we would be handicapped if some of these proposals went through. We fight for liberty and free speech and I'm of the opinion that fighting hard to retain the pleasures of shooting is well worth while and indispensably important for the maintenance of freedom in future years. One example of a blown up gun as shown on the cover of the February issue, or a reloader's basement which blew up for an unknown reason but which undoubtedly and unfortunately contained a little bit of handloading powder but by no means proved the basic cause of the accident, stimulates a lot of "do-gooders" to Monday morning quarterbacking along the line that in their opinion would stop all such accidents. There is not much takes the place of common sense and caution, and I am sure it can't be legislated into people. It is evident that advice is not impressionable on some people but just bear in mind that gun accidents and airplane accidents are always good for a column or two in the local paper.

Well, Phil, I got to Elmira and back again. One of the New York policemen, with his radar gadget, had a little complaint about me going through a 35 mile zone with my speedometer digits reversed on my way to Bob Stinehour's house, so I figured as long as I had driven 250 miles, there were two good reasons for friend Stinehour to pilot the car from Newburgh to Elmira. The roads were clear and it was good to meet most of the gang already there Friday evening. I had my usual hard time the next day at the meeting, but the condition is getting a little chronic, and like all chronic conditions, a certain amount of immunity is built up. There were good suggestions made, some of them were adopted and in due course of time will be acted upon. Good will result because on the whole the organization acts for the best interest of most and even corrects some of its faults. The suggestion that the varmint class rifles be frozen at their present specifications seemed to have a great deal of merit, and the determination to search diligently and promptly for a suitable method for minimizing and identifying cross fires was finally put across. Some expense may be entailed, requiring money, time and labor but the price to right a wrong must somehow be paid.

From the schedule set up for the Eastern Region, it is evident that a lot of

(Continued on Page Sixteen)

HUTCHING'S RIFLE STOCKS

Dealer Inquiries Invited on printed letterhead

THE MARKSMAN STOCK IS IDEAL FOR THE VARMINTER-SPORTER CLASS BENCH-REST RIFLES.

L. B. ROTHSCHILD, Manufacturer, Dept. P-3, 4504 W. Washington Blvd., Los Angeles 16, Calif.

HUFNAIL BULLETS

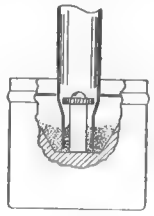
Specializing in custom hand swaged bullets in calibers .22 through .30 that are not available from any other source, to the best of my knowledge. Write me about your needs and your particular bullet problems.

D. B. HUFNAIL
Town Line Road,
Rutland, Vermont

Now Available

Molybdenum disulphide, powdered mica
Microfyne graphite

No Oil — Saves Work



Saves Tools — No Grease

All are now available in the "SURE-MARK" CASE LUBRICATOR—The simple, easily operated tool that applies just right amount of dry lubricant for case neck resizing without mess or bother. Complete unit for all calibers from .22 to .45 with graphite or powdered mica $1.00 postpaid; moly, disulphide $1.25.

Wilkins & Schultz, Inc.

Box 51H Barrington, Ill.

JUNKER---World's finest shooting glasses, **designed** for rifle shooting, very definitely needed by older men for metallic-sight work.
Frames only, **$18.50.** With non-prescription lens, **$22.50.**

ANNOUNCEMENT

Beginning January 1st, 1960, I will begin wholesaling to a selected dealer list a number of arms and accessories—Walther, Gehmann, Junker, Unertl, etc. Responsible established shops serving the competitive shooting public are invited to write for lists. No part time letterhead gunsmith inquiries, please.

ROY F. DUNLAP, **2319 Ft. Lowell Road, Tucson, Arizona**

BRICE SHOOTING MITTS

For discriminating riflemen.

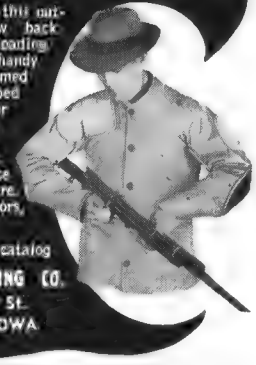
Durable, soft leather, heavy wool padding on back and wrist; protects against pulse. Fingers free. Best mitt for long, hard holding.

Price $6.00 postpaid. Send glove size with check or money order.

L. J. BRICE
8525 S. E. 32nd Ave., Portland 22, Oregon

10-X RIFLEMAN'S COAT

You'll shoot better in this outstanding coat. New back pockets keep glove, loading block, ammunition handy in any position. Preformed elbow pads are shaped for shooting. Shoulder pad fits sleeve, coat, you and rifle butt. Self adjusting back tension. First choice of riflemen everywhere. Models for ladies, juniors, too.



Write for FREE catalog

10-X MANUFACTURING CO.
401 E. Second St.
DES MOINES, IOWA

SHOOT! "Harvey Jugular Jacketed" & "Harvey Prot-X-Bore" Zinc Base Swaged Handgun Bullets.

Moulds, Swaging Dies 38, 357, 44 cal. & 45. .224 Kay-Chuk Handgun Conversions, of S&W K-22, Combat & M. R. F. Send 25¢ in coin or stamps for complete information.

"R"

LAKEVILLE ARMS INC.
Lakeville, Conn.

Licensed Associate Manufacturers of Jugular and Prot-X-Bore bullets.

Mason Williams, Stanfordville, New York
Maurer Arms, 29 Willow Way, West Chester, Pa.
C. B. M., Inc., Rte 2, Castle Rock, Colorado
Lomont Precision Bullets, 4421 S. Wayne, Fort Wayne, Ind.

Stool Shootin Stuff

(Continued from Page Fifteen)

shooting will be going on both before and after the National Matches. At long last, a little more attention is being given to the varmint rifle program and this year it is probable that a new location will be chosen for the Eastern Region Varmint Championships. The Altoona range has in the past held these matches and they were well conducted; however, the change of location is a more healthy thing for the game and will bring to the attention of some local shooters the pleasure that is to be derived from making small groups from other than benchrest rifles, and bring new competition to varmint matches, wherever held.

The weatherman behaved in his usual aggressive manner, and before we went to bed on Saturday night (what am I saying—it was 4 A. M. Sunday morning) started to dump his usual deluge of snow on the Elmira streets. The attendance was a little sparse at the meeting on Sunday morning for both of the foregoing reasons, so by noontime most of us were ready if not willing to buck our way homeward. After a nice overnight stop at Bob's house, I went **home** by way of a visit to Judson Darrow where I found him in the midst of many projects in his usual busy shop. He does nice work and my only complaint is that he has so much of it he can't get to the benchrest shoots. I guess we will have to add him to the list of old timers whose attendance we are planning to solicit at next Fall's shoot at Johnstown. At that occasion we are in hopes of getting out a number of old timers whom we have missed in later years. Some of them, perhaps, won't have guns to shoot at this stage but we propose to take care of that by loaning them our guns for their events and supplying the material and loading efforts as needed. Quite a list was entered on the sheet that was passed around at Elmira of such old time shooters and before Labor Day arrives it is hoped that the old timers and their shooting events will be well organized. Even if they can't shoot, we hope to see them and shake hands with them again. We have missed them, and it is no crime to say so.

After I left Judson's, I went on to the Lyman plant but found I was a month or two too early to report new developments from which the cloaks are yet to be removed. I did, however, have a very friendly visit with Harold Handley in the telescope department. He showed me a few things about telescopes that I hadn't recognized before and the conversation which was intended to only last a few minutes worked out to a very pleasant visit of one hour. A good varmint rifle competition at the Lyman range would really be an event. The hundreds of shooters competing at the Blue Trail Range throughout the year are just the types we would enjoy and need to get at our varmint matches. They are used to judging wind and mirage and would offer very keen competition. We would learn things from them and I am sure they would adopt some of our procedures that have made precise rifle shooting more important than ever before.

Cordially yours, Ernest Stuhlschuter

Letters

(Continued from Page Nine)

for night shooting over the Dewar course from bench. We have a lot of fun and turn out from ten to fifteen every Monday night.

Sincerely, Frank J. Kahrs

"THIS AND THAT" COMMENT

Dear Phil:

Having known of a couple of instances where handloaders got into trouble, either through pure ignorance or through trying to squeeze the last two or three feet per second out of an outfit, the photo on the cover of the February issue was of particular interest. It's a fine idea to feature such things occasionally. We have far too many people who start out handloading with a set of tools and a batch of components, but no ideas in mind other than getting the very utmost out of a certain cartridge.

One thing, in particular, struck me about the picture on the cover. Winchester should be proud of that nice cross-grained piece of wood the stock was made of. Maybe that was a safety measure to keep the owner of that rifle from hitting his wife over the head with it more than once. That would be all the stock would stand.

Also, I was interested in Rod Manson's letter, starting on page 15, regarding the refusal of the American arms companies to supply actions or barreled actions. I've had this matter up for consideration with a couple of them. To my mind Remington, in particular, is missing the boat by not offering the 40X and the 721-722 group actions or barreled actions to the shooters. I can see how they might find it interferes with production to put special custom jobs through, but I can't see any particular difficulty in yanking off an action or a barreled action before it reaches the stocking section of the line. Perhaps they feel they can't test it without a stock, but I think a real smart fellow could get around that. With the number of smallbore shooters, for example, that go in for thumbhole stocks there is a large potential market for such items. Now they are going for the imported jobs—and I can't blame them. Yours sincerely,

John B. Miller Lewisburg, Penna.

SUGGESTION MEDLEY:

Dear Sirs:

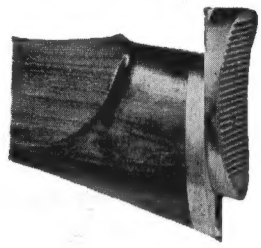
Have read your desire for kinks to help beginners so am contributing a few.

FOR THE SHOOTER BY A SHOOTER

BSA
MARTINI-INTERNATIONAL

.22 Caliber Martini International Target Rifle, in the light or heavy weight rifle, for the RIGHT or LEFT HAND SHOOTER,
without sights $150.00
BSA Martini with factory sights $170.00

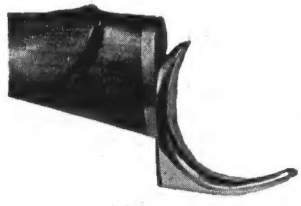
FREELAND and REDFIELD SIGHTS AVAILABLE



All Angle Tripod

FREELAND BENCH REST STAND with 3 sand bags $20.00

FREELAND Adjustable Aluminum Butt Plate ... $10.50
FREELAND Base Plate with Free Rifle Hook $15.75
FREELAND Butt Plate with Rubber Pad $13.00
FREELAND Free Rifle Hook Only $8.50



FREELAND ALL ANGLE TRIPOD, in green, gray or black, mention scope when ordering $15.25
FREELAND BIPOD, mention scope when ordering $17.50

FREELAND SWISS TYPE PALM REST $18.50
FREELAND PALM REST, ball type $12.50
BALL TYPE PALM REST for the 513 Rem. $14.00

ALL ANGLE GALLERY SPECIAL TRIPOD $16.85
44" PARKER-HALE BENCH REST LENGTH CLEANING ROD $3.75
ALUMINUM CASE for 44" Rod $3.00

FREELAND LEATHER HOLSTER RUG FOR HAMMERLI, High-Standards with 10" bbl, etc. $9.50

FREELAND Car Window Attachment $7.50
FREELAND Dewar Type Cartridge Block $2.30
FREELAND .30 Caliber Shooting Kit $13.50
FREELAND ¼ Opening Rifle Kit $20.00
FREELAND Conventional opening ½ tray kit $17.75
FREELAND Conventional opening full tray kit $18.25
FREELAND 48 ¾" Rifle Trunk, mention gun $26.25
(Above kits and trunks are metal covered)
FREELAND Leatherette Rifle Kit ... $24.50
(All kits and trunks fob Rock Island)
FREELAND Fore-end Stops for 52M, 75 Win, 513, 521 & 40X $3.00
FREELAND fore-end stop 37 Rem. $3.50
FREELAND Universal Fore-end Stop, for custom stocks $7.50
FREELAND Deluxe Cuff & Q. D. Hook $4.25
Mention size—come 14" to 18" length
FREELAND Midcentury Cuff Combination, complete with sling, pad, keeper, for either right or left hand shooter $8.50
FREELAND Superior Front Sight ... $15.00
FREELAND Junior Front Sight $12.50
FREELAND Tube Rear Sight, with regular scope mounts $37.50
FREELAND Military Front Sight ... $12.50
FREELAND Superior Twin Set of Sights, front $26.00
FREELAND Sheepwool Zipper Cases for straight scopes $5.25
FREELAND Shooting Mats $20.50 & $17.50
FREELAND Gallery Special Stand ... $18.90

FREELAND Sling Keeper $1.25
FREELAND Foam Padded Glove $5.25
FREELAND Blinder & Scope Aperture $3.25
FREELAND Timer Cartridge Block $10.00
STANDARD RUGER .22 Automatic .. $37.50
RUGER MARK I Target Pistol $57.50
Redfield Junior Mount Bases, Pair $7.50
Redfield Split Rings, 1", 1.023, 1.045 .. $14.00
Redfield #80 Sight, mention gun $8.50
Redfield International front sight $13.95
Redfield Olympic Front sights $11.95
Redfield International Rear with Sure-X Disc $39.75
Redfield Olympic Rear with Standard Disc $21.95
Redfield X-Tube $19.50
Winchester Model 70's, give cal. $134.95
Win. Model 52's $136.45
Win. Model 67's $18.95
Win. Model 69's $33.75
Win. Model 12, Field gun $109.15
Sheridan Blue or Silver Streak $27.50
Crosman #160 Gas Rifle $29.95
HAHN Super BB Repeater rifle or pistol $15.95
MARKSMAN .177 AIR PISTOL $8.95
MARLIN 80C $24.75
Marlin 57 Levermatic $37.50
Remington 870AP Plain Field Gun $89.45
Remington SPT 58ADL Plain Bbl Field grade $136.45
Remington 725ADL High-powered rifle $101.20

Remington Model 40X Standard weight or Heavy $141.25
MOSSBERG 144LS Clip Repeater .22 $37.45
THALSON STARTER PISTOL $7.50
THALSON #723 DeLuxe STOP WATCH $18.00
WEATHERBY DELUXE RIFLE, give Caliber $250.00
S&W Model 28 Highway Patrolman .. $85.00
S&W Model 19 357 Combat Magnum $110.00
S&W K22-K38 or K32 MASTERPIECE $81.00
(Accessories extra for target work)
HIGH STANDARD SPORT KINGS $49.95
HIGH STANDARD COLORED SENTINELS $52.50
HIGH STANDARD DOUBLE-NINE $44.95
HIGH STANDARD SUPERMATIC TROPHY $112.00
TIMNEY TRIGGER, Mauser, Enf. & Spg. $8.95
FITZ TEN-O-GRIPS $6.95
MARK TIME PISTOL TIMER $7.95
PACHMAYR 4-gun Pistol Kit $29.50
LAWRENCE IC holster for Double-9 $4.35
MERIT MASTER TARGET DISC $6.50
LYMAN SUPERTARGETSPOT SCOPE $134.00
LYMAN 310 Tool Complete 1 Cal. $16.50
BUSHNELL SPACEMASTER SCOPE $95.00
BUSHNELL SENTRY SCOPE $54.50
WEAVER PIVOT MOUNT $12.50
SATURN SCOUT SCOPE $29.95
RANGER $87.00

WRITE US FOR ALL YOUR GUN, SCOPE, MOUNT, SIGHT AND RELOADING NEEDS.
** OFFICIAL POLY CHOKE INSTALLERS **

Send $1.00 for Catalogue, redeemed on first $3.50 purchase. Freeland and BSA Pamphlets Free

DISCOUNT TO ESTABLISHED DEALERS

FREELAND'S SCOPE STANDS, INC.

Al Freeland, Nationally Known Rifleman

3737 14th Ave., ROCK ISLAND, ILL.

There should be several divisions to keep information organized. For instance, sights, triggers, wood to metal fit, shooting coats, ammunition, and guns that slip all over the place, not to mention off-center chambers.

The first thing after buying a rifle is to clamp the stock in a padded vise and try to find what is loose on it. You can't find loose sights by holding the rifle and wiggling the sight with the fingers. I even found a loose barrel this way one time.

The easy way to remedy a loose sight and still have it stay adjustable (micrometer sights) is to wrap a rubber band around so it pulls out the slack. This is usually a sure-fire cure. All sights with dovetail joints should be silver soldered, or at least have gasket cement in all permanent joints. Never take any sight for granted.

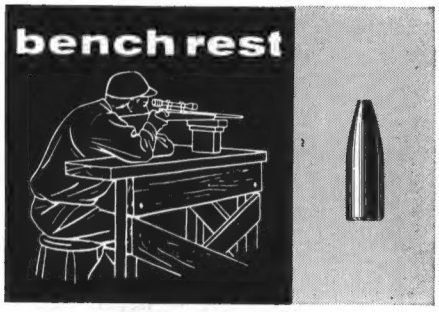
Triggers are best gotten used to. When you are able to handle a rough trigger well enough to know what it is doing throw the book at it, after reading the book, that is. I believe one thing that is being lost is the ability to analyze trigger pull, and also the exercises that make for expert trigger squeeze. Try pulling and releasing a trigger without the striker being up, just the trigger moving, and stay on the target at the same time.

Santa Cruz, Calif. A. O. Tshirner

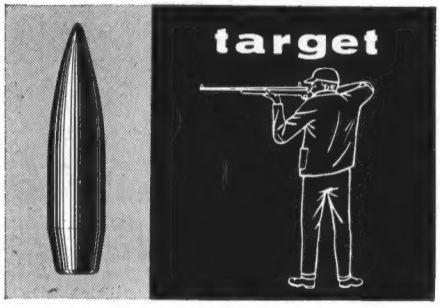
CHAMBERING
REAMERS
★
GAUGES
22 WIN. RIM FIRE MAGNUM
For the Gunsmith
115 Calibers from 177 Woodsman to 505 GIBBS
For the Ordnance Engineer
30 Caliber Carbine to 20 MM Automatic Cannon
WRITE FOR NEW CATALOG
H & M TOOL CO.
24062 Orchard Lake Road,
Farmington, Michigan

CHOOSE SIERRA!

there's a bullet for every shooter . . .



.22 CALIBER, .224 Diameter Bench Rest 53 grain Hollow Point. The most accurate and precisely manufactured .22 Caliber Bench Rest Bullet.



.30 CALIBER, 180 grain Matchking. A fully jacketed bullet with exceptional accuracy made especially for championship competition shooting.

.30 CALIBER, .308 Diameter, 110 grain Hollow Point. The lightest successful .30 Caliber bullet made. Phenomenal accuracy and killing power at varmint ranges.

Sierra has a free informative brochure for you about the hobby of handloading. Write today for your copy. — Dept. 586.

for target or game... the name's the same

SIERRA BULLETS

600 West Whittier Blvd. • Whittier, Calif.

THE INFORMATION BENCH

The Information Bench service is available to all Precision SHOOTING readers. With your questions, send a large, stamped, self addressed return envelope for a reply. Selected questions and answers, covering as wide a variety of interests as possible, will be published in these columns. Address your questions to the following people.

Bench rest, varmint and hunting rifles, accessories, handloading, components and shooting methods—**M. H. Walker, THE INFORMATION BENCH, RFD #1, Box 118, Mohawk, N. Y.**

NRA and Free target rifles and shooting—**Roy F. Dunlap, 2319 Ft. Lowell Rd., Tucson, Arizona.**

Sporting handguns and loading—**Kent Bellah, Saint Jo, Texas.**

American Single Shot Rifles—**Rupert S. Hill, 325 James St., Elkhart, Indiana.**

Question: I have a question on the optimum barrel length for heavy bench rifles. On my own rifle I have a 1¼" X 31" barrel in a 722 action with a copy of the Gottschall sleeve collet reinforcement as shown in the May '59 issue of Precision Shooting. The barrel was cut to 31" as this seems to be the most popular length.

In looking at the completed rifle I have gone to great length to have a very rigid action and then installed a long barrel to magnify vibration.

It seems case capacity and type of powder being used would determine the best barrel length for a particular caliber. In the .222 Remington, using powders suited to this case (4198 and Ball C), how short may the barrel be and still burn the powder clean and uniformly? Allen T. Bench, Wash.

Answer: If you feel that vibrations or jump are affecting the accuracy of your 31" barrel, try altering the powder charge in small increments, say 0.1 grain, in order to alter the vibration characteristics. You may be able to improve the accuracy. I would recommend saving that extra barrel length for a possible re-chambering job. However, several bench rest shooters have used barrels to about 24" with success. M. H. Walker

Question: In playing with some loads in .35 Whelen I ran into the following **contrasting** results and before going further I thought I had better get some answers to some obvious questions.

Load No. 1: G. I. cases, #120 primer, Hornady 250 grain seated to cannelure, Duplex charge of 53 grs. 4831 and 7 grs. 4198, thoroughly mixed. Tube charged, compressed load.

Load No. 2: Everything identical to No. 1 except that after tube charging the 53 grs. 4831, the 7 grs. 4198 was put on top and held there by compression.

Results: Load No. 1 gave light recoil, showed a round primer such as usually observed from very mild pressure. Load No. 2 seemed to have a vicious recoil and showed a really flat primer as from a maximum load.

The big question of course is; does load No. 1 have a much lower velocity than load No. 2, or aren't the usual observations dependable in such cases? Also, is load No. 1 really giving much lower pressure? What could be expected if the positions of the separated charges had been reversed, that is the 4198 positioned on the bottom right next to the primer? These loads were fired in conventional cases, not fitted with tubes for front ignition. Fred M. Seguin, Wisconsin.

Answer: I could only guess as to what caused the extreme difference between methods of loading your Duplex charge.

The results are slightly less obscure. Your No. 2 load obviously gave a higher peak pressure, but not necessarily higher velocity, since the pressure-time curve may have a high peak without having more area under the curve. In fact it is quite likely that the velocities were the same and the areas under the P-T curves were the same. The higher peak pressure on the No. 2 load gave a higher maximum force and higher apparent recoil. M. H. Walker

Question: I've been shooting bench rest for several years and have tried the various actions and sleeves. I've noticed that you and several others used the Hart actions and have been doing pretty well with them.

Would you be kind enough to give me a complete, unbiased and objective opinion of them? Are they a really top-grade job? Are they quality? How is trigger? Wm. Schellert, Mo.

Answer: I do not believe the Hart actions are available. These were all made by Charlie Hart who died some time ago. They were good actions using the M/722 bolt and trigger. They were made from 4140 steel (chrome moly) and heat treated to give the best all around properties. None of the home made actions are fancy or show evidence of extreme care in finishing, etc. They were made to serve a practical purpose and appearance was secondary to securing one hole groups. Bench rest rifles are not pretty under the best circumstances, so why strain your artistic ability all out of shape trying to make them so. M. H. Walker

Question: What should the firing pin protrusion be for the .222 and the .219 Don? Would a tight coil on the firing pin spring cause the trouble that would affect accuracy, and should this spring fit free in the bolt? Ferris Pindell, Ind.

Answer: The firing pin protrusion for the .222 Rem. and .219 Don should be not less than .045. The maximum is about .065, but a few thousandths more does nothing but shorten the blow of the firing pin by that amount. The firing pin indents the primer only about .020 plus or minus .002, so extra protrusion does no harm unless it gets so large that energy is lowered due to shortening of the blow. M. H. Walker

Question: It is my desire to come up with a rifle to be used mostly for bench rest work in the heavy varmint rifle class. Had about decided to buy a Sako short action only, then have a Hart barrel installed, in caliber .222. However, I'm not sure that is the best way to go at it, or where to have the work done if it was. The stock work can be done locally, although I'm not sure it will be.

Any advice you would care to give me will be appreciated very much. I've been a rifleman most of my life, am now 60 years of age, and only in the last couple of years got interested in bench rest shooting. The heavy varmint class is all I'm interested in entering. I do not expect to win many matches, and do not have to win to enjoy it. I would like to have a rifle accurate enough to let the fellows know I am there. Glen B. Jones, Wash.

Answer: I think you have made a happy choice in the .222. No more accurate cartridge has been assembled. With a varmint weight rifle it is the very best selection.

For the action I personally prefer the M/722 as do many other bench rest shooters.

Why not write Clyde Hart, R. D. #2, LaFayette, N. Y. and ask him for a quotation on a barreled M/722 action to your spec's. The barrel weight should be as heavy as possible to stay in the varmint class. This would be 1.200"-1.250" at breech end, 28" long and about .875" at the muzzle.

TRADIN' POST

Classified type ads; no display. **Rates:** — 10¢ per word per insertion, prepaid. Minimum charge $1.00. Closing date for ads is the last Saturday of the month preceeding publication.

Groups of figures, abbreviations and initials count as words. Hyphenated word counts as two words. Name and address of advertiser is counted. Use full words instead of initials and abbreviations and make your meaning entirely clear — get your money's worth.

TRADE new 6X24 B&L scope for set of .22 caliber bullet swaging dies. William S. Bock, 1816 McKenzie, Waco, Texas.

WANTED: Hopkins & Allen heavy Mauser type action or rifle. Reilly Machine Works, 445 Western Avenue, Albany, New York.

TRY IT: Some unusual, hard to find items have been located and procured through TRADIN' POST ads. They are also a means of procuring high quality used items at reasonable prices. You can tell folks what you need and want at a modest cost.

The stock work is important. It is recommended that you select a stockmaker with a good reputation. M. H. Walker

Question: Is accuracy affected by a striker that prints considerably off center?

I have a Model 70 Standard weight in .243 that has never performed up to expectations. Have checked bedding, action and forearm screw tension, and have tried numerous combinations of powder, primer and bullets. This rifle will occasionally shoot a ⅞" group at 100 yards from the bench, but will average more like 1⅜" with a six power scope. My heavier caliber sporters (.270, .30-06 and .300 Apex Magnum) will outgroup the .243 easily. R. H. Alderson, Colo.

Answer: If your M/70 strikes a weak firing pin blow as well as an off center blow, some minor portion of the so-called inaccuracy might be charged to the firing pin, particularly if your groups show a predominately vertical spread. However, vertical groups can be caused by loads which are too light or poor bedding, etc., so don't jump to conclusions.

It is more likely that the difficulty is in the bedding or the barrel or the bullets. A 1⅜" average is not the worst I have seen from a factory rifle, even with hand loads. Your 30-06, 270 and 300 Apex Mag. are certainly good rifles if they will consistently average better than 1⅜" at 100 yards, particularly if they are sporters of 8 lbs. or less.

Don't forget to check that scope. They can cause accuracy difficulties. M. H. Walker

Question: Is a .22 short cartridge more accurate than a .22 L. R.? Is a Hi-Standard .22 Short Olympic Citation more accurate than a .22 L. R. Hi-Standard Citation or Trpphy? J. B. Taylor, Illinois

Answer: In the same grade of ammunition a .22 L. R. is the most accurate, and the most highly developed. Match grade ammo is the most carefully loaded, and is naturally the most accurate of all. Cartridge accuracy seems to be of less importance in rapid fire competition than gun handling.

I've preached for years that the best gun is the one you can handle best, for either practical use or competition. Precision accuracy doesn't mean a darn thing, if you can't use it, although some people do not see it my way.

Shorts are used in Olympic and International rapid fire competition as they allow faster recoil recovery, with accuracy good enough to make possibles, at least nearly all the time.

The three top Hi-Standard pistols; Olympic Citation, .22 L. R. Citation, and the prestige grade Trophy: all hold the maximum accuracy of the cartridges they are chambered for to a very, very high degree. No one can say that one model is more accurate than another, as the accuracy of the cartridge must be considered.

Western's new .22 Short Super Match has possibilities. It's too soon to make any definite statement, but I believe it gives better ignition than any similar cartridge they have made in the past. I believe it will help reduce slow ignition and misfires, that have been more common than in .22 L. R. fodder for some reason. Kent Bellah

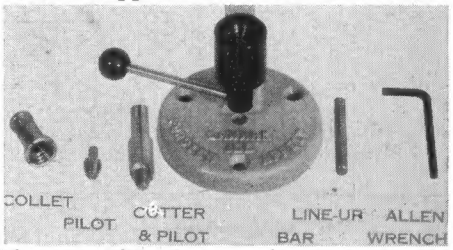
CASE CAPACITY VARIATION

Re Bob Snowfall's articles on case capacity, I have been a firm believer in selecting cases of the same make for weight and therefore uniform capacity after this fact was pounded home to me. Contrary to George Jacobson's article in the RIFLEMAN in re case neck thickness, I ran into this surprising situation while reaming necks, namely that as the cases decreased in weight, so did the metal that was removed by the reamer. When I got to the lightest cases, it was impossible to ream the entire neck (these were all DEN43 cases). Now if there is such a lack of uniformity in cases of the same make (and some of the best as far as I am concerned in this caliber), how about some of the poorer quality brass.

George Bjornstad
Chicago, Ill.

NEW

Forster-Appelt Power Case Trimmer



Fits any drill press to trim cases to the proper length quickly and easily. Especially useful where considerable shortening of the case neck must be done.

Complete with one collet and pilot $12.50
Conversion kit for those who already have the hand-operated FORSTER CASE TRIMMER $9.00

NEW ACCESSORIES NOW AVAILABLE

UNIVERSAL HOLLOW POINTER, fits any caliber. In either 1/16" or ⅛" drill size $4.75

30/06 BULLET NOSE TRIMMER, for removing the point squarely and uniformly from military cartridges prior to hollow pointing $4.75

PRIMER POCKET CHAMFERING TOOL, fits any size primer pocket, with center $5.00

222 Rem. Mag. HEADSPACE GAUGES and COMBINATION CASE LENGTH AND HEADSPACE GAUGES are now ready.
Only $4.50 each gauge

FORSTER CASE TRIMMER, 1 collet & 1 pilot $14.25
BULLET PULLER, with one collet ... $4.75
OUTSIDE NECK TURNER, with one pilot $10.75
INSIDE NECK REAMER $5.50
PRIMER POCKET CLEANER, with center $2.00
INSIDE-OUTSIDE CASE CHAMFERING TOOL $2.50
STOCKMAKERS HAND SCREWS, pair $2.00
STOCK INLETTING GUIDE SCREWS, each ..... $.35
LOADING DIE BLANKS, with lock ring $2.25
GUARD SCREWS, each ..... $.30

write for free literature

Gunsmith and Dealer inquiries invited

Forster-Appelt Mfg. Co., Inc.
19 E. Lanark Ave. Lanark, Illinois

DON'T MISS A SINGLE ISSUE OF PRECISION SHOOTING

SUBSCRIBE NOW WITH THIS HANDY COUPON — OR ON YOUR OWN STATIONERY

SUBSCRIPTION FORM FOR PRECISION SHOOTING
64 DEPOT STREET LYNDONVILLE, VERMONT

Please enter my subscription for the period indicated below

☐ TWO years $7.00 ☐ ONE year $4.00
☐ THREE years $9.00 ☐ FOREIGN 1 year $5.00
☐ Payment enclosed ☐ Please bill me

Name _____

Address _____

City _____

State _____

PROOF-ULTRARIFLED* BARRELS

are the BEST production-made Barrels

1. National Bench Rest Championship, Du Bois, Pa., 1957, Harold Hale.
2. National Small Bore Championship, Camp Perry, Ohio, 1957, John Moschkau.
3. 300 Meter Aggregate score, Du Bois, Pa., 1957, Don Robbins.
4. First and Second places, 300 meters, Du Bois, Pa., 1957, Clair Taylor and Don Rob
5. National Match Course, Du Bois, Pa., 1957, 1st, 3rd, 6th, 7th places.
6. National Match 10-shot 100 yd. aggregate, Augusta, O. Al Creighton, .3105".
7. National Bench Rest Championship, Johnstown, New York, 1955, Sam Clark, Jr.
8. 10 Shot 200 yard WORLD RECORD, Du Bois, Pa., 1954, Sam Clark, Jr. Score, or Group, .5276"
9. 10 Shot 200 yard WORLD RECORD, Du Bois, Pa., 1956, H. L. Culver (Present record) Group size .4016"
10. 1000 Yard, Famous Wimbledon match, any sight, 1955, Camp Perry, O. Frank Conway.
11. 1000 Yard, Famous Wimbledon match, any sight, 1956, Camp Perry, O. Frank Conway.*
12. Newest National Match Course winner, Wichita, Kans., Sept. 28, 1957, H. W. Barton, official new record, .3729" M. A. average.

* First two-time winner in 57 years.

Other individual matches, too numerous to detail, were taken by Douglas ULTRARIFLED barrels, in 1953, 1954, 1955, 1956 and 1957, since the advent of our development of ULTRARIFLED barrels in 1953.

Now available in limited numbers—barrels made of the VERY NEWEST TIMKEN erosion resistant steel, No. 17-22 A (S).

All of the above barrels were barrels regularly used by the above shooters in setting these marks. They were not selected in advance by firing tests. All were regular PRODUCTION MADE BARRELS.

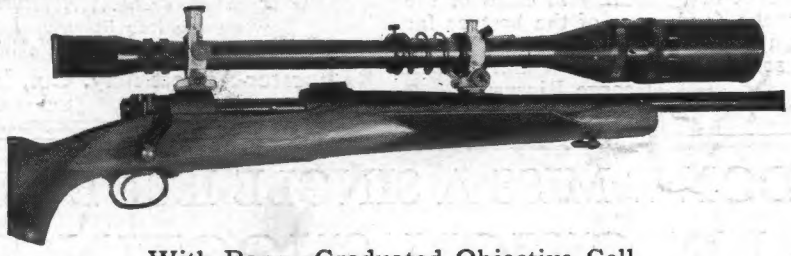
I submit the above as attesting to the fact that the ULTRARIFLED "button rifled" barrel is the finest PRODUCTION MADE barrel obtainable today, anywhere. Day after day, these barrels insure the attainment of finest accuracy for the customer, the least trouble, and the most profit for the dealer-gunsmith. In addition I feel that our trade policies, discounts, deliveries, prices, and our constant assurance of a high level of performance from all our barrels, large or small, provides an overall service not matched by any other Barrelmaker in the land.

G. R. DOUGLAS CO., INC.

5504 Big Tyler Road, Charleston 2 ,W. Va.

* Pat. Pend. T. M. Reg. Made Exclusively by G. R. Douglas. Ask for FREE Data

UNERTL ULTRA VARMINT SCOPE



With Range Graduated Objective Cell
Ideal for Target, Bench or Varmint Shooting
Available in 8, 10, 12 or 15X

Complete with mounts and bases **$115.00**

Target scopes in objective sizes from ¾" to 2", powers from 3X to 24X.

Prismatic Spotting Scopes 20X54	$64.00
Prismatic Spotting Scopes 24X63	80.00
Right Angle Spotting Scopes 24X63	96.00

BIG GAME HUNTING SCOPES:

2¾X Falcon $48.00 — 4X Hawk $52.00 — 6X Condor $66.00

JOHN UNERTL OPTICAL CO.

3551-55 East St. Pittsburgh 14, Pennsylvania

SAECO

MICRO-SETTING PRECISION

POWDER MEASURE

with CLICK-DIAL Adjustment

*HAS FULL RANGE ADJUSTMENT
*MICRO-SETTING DRUM ADAPTABLE TO ALL STANDARD SAECO POWDER MEASURERS

SEND FOR FREE LITERATURE POWDER MEASURE AND SAECO ELECTRIC MELTING FURNACE!

SANTA ANITA ENGINEERING CO.

OF CALIFORNIA
2451 E. Colorado St., Pasadena

SAM BOND

NEW PHILADELPHIA, OHIO
RETAIL & WHOLESALE
SHOOTING & HUNTING SUPPLIES
CARD FOR LIST

.224 MATCH BULLETS
Hand Swaged—Hollow Point
40 through 60 grain weights
$2.75 per 100-200 postpaid
PEGGAR CUSTOM LOADS
P. O. Box 928, Auburn, Alabama